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States New NRA Policy On Open Price Filing

National Industrial Recovery Board Announces New Definition of Administrative Policy Relative to Open Price Filing, As First of a Series of Announcements of New Policy To Be Made As a Result of Public Hearings Held and Special Studies Made by the Board —Differentiates Between Pricing, Filing and Price Fixing

The National Industrial Recovery Board last week announced a new definition of administrative policy relative to open price filing, as the first of a series of announcements of new policy which will be made as a result of public hearings held and special studies made by the Board.

Open Price Filing Should Be Perfected

"The device of open price filing," the Board's policy announcement reads, "should be perfected, guarded against abuse and applied with discrimination to the industries to which it is appropriate. In certain industries and for certain commodities for which an organized open market is not practical, the virtues of an organized commodity exchange may be approximated through the device of open price filing."

At the same time, the Board announced administrative steps for the application of policy, and issued an explanatory "introduction to general price policy."

The burden of proof that a proposal contrary to announced policy is necessary must rest with the applicant industry, the Board's rules for policy application emphasize. Unless such proof is furnished, the rules provide that no new provision contrary to policy will be approved, and no approved provision contrary to policy requiring further NRA action to become effective will be put into effect. At the expiration of any trial period of any contrary-to-policy provision, opportunity will be given its sponsors to show cause for continuing the period or trial or making the provision permanent.

Two Courses of Action Open

If a provision contrary to announced policy is fully operative in a code, two courses of action are open. "If no adequate showing has been made to NRA that such provision is in conflict with the interests of the public or the justifiable interests of any group, arrangements for observation will be made; but no other action will be taken in the first instance." On the other hand, "If there is adequate reason to believe that such a provision is in conflict with the interests of the public or the justifiable interests of any group, the industry will be offered an opportunity to negotiate with NRA or to be heard on the subject. If, after such a hearing or negotiation such conflict still appears and a satisfactory solution cannot be reached, the provision will be deleted, or suspended, or temporarily modified, pending approval of a satisfactory substitute or modification."

Action by the NRA approving or making effective applications for code provisions contrary to policy will not be taken, except in unusual cases, "pending Congressional decision concerning the jurisdiction and objectives of the NRA."

Supervision of the operations of policy decision has been delegated to the Code Administration Director. That post is filled at present by Prentiss L. Coonley. In addition, at least three persons will be appointed to aid in interpreting policy to divisional and deputy administrators. One will specialize on price and other trade practice policy, another on labor policy and another on code administration policy. In addition, all executives and major staff officials, especially those in continual touch with the problems of industry, are directed to observe the operation of policy decisions, and the Division of Research and Planning will continue to make special studies and surveys.

Function of Prices Defined

The Board's "introduction to general policy" defines the function of price. "Industry is the instrument through which goods or services are supplied. The producer, the laborer, and the consumer alike have a stake in its efficient and orderly operation. The facilitating of adjustments among these several interests and their individual members is the function of price. Price also facilitates adjustments among the many industries whose products compete with one another for the consumer's dollar. Unless price operates effectively to determine these working arrangements among the interested parties, some deliberate arrangement or planned control must be permitted or established."

Although the competitive system is often considered "an automatic self-regulating mechanism," the Board's announcement states, "as a matter of fact the economic order is not now, and never was, self-regulating. To the end of securing an orderly, efficient and humane industrial system, the regulation of competition has proceeded along three lines." The three lines cited are "to secure the maintenance or restoration of competitive conditions" (threatened or eliminated by monopoly), "to regulate the

(Continued on page 33)

Quebec Newsprint Measures to Be Debated

Legislature Will Thoroughly Discuss Prevailing Situation During Present Week—Government Will Advance Reasons Why Provinces Should Control Industry At All Times—Premier Considers American Publishers Attitude "Pure Bluff"

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 29, 1935—The Quebec Legislature during the present week is scheduled to debate the Government's newsprint bill, and it is expected that this bill and the newsprint industry in general will be given a thorough airing. Premier Taschereau, in announcing the forthcoming debate, said the Government would advance reasons why the province should control the whole industry, including newsprint companies, at all times.

Premier Taschereau, in an interview, was asked what he thought of the report of the Paper Committee of the American Newspaper Publishers' Association to the effect that "the only defence publishers have against the intervention of the Quebec Government to force artificially an increase in newsprint market prices is to place their commitments as far as possible with United States mills, with whose Government they can deal directly, or with mills operating in foreign countries whose governments have not threatened to interpose themselves on bona fide contracts."

Premier Taschereau's comment on this report was terse. "Pure bluff," he said.

Stumpage Dues Affected

As matters now stand, newsprint companies operating timber limits in the province are called upon to pay stumpage dues amounting to $2.35 per 1000 feet, but under the new bill stumpage dues "may" be fixed as high as $12 per 1000 feet. The Premier's stand is that the proposed legislation will put "teeth" in the law, and give the government a club with which to prevent obstinate companies from fixing the price level of the whole industry through making contracts at prices that are held not to show a reasonable return. Under the custom the lowest contract price is the one governing all contracts.

"Companies obeying the law will not suffer; others will," said the Premier to the press, in answering a query as to whether he had received any intimation as to how newsprint men felt about the new bill.

The bill, in addition to providing for a substantial increase in stumpage dues, also empowers the Government to prevent accumulation of huge reserve stocks by companies. It provides that not more may be cut each year than to fulfil contracts. There are several other clauses in the measure to control the activities of newsprint operators, chief of which is one that stipulates that they shall not dispose of their products at prices which do not represent a reasonable profit.

Bill Depends on Newsprint Interests

Whether the bill will ever become effective depends entirely on the newsprint interests, it is understood here. The general impression in political circles is that it will be used only as a "big club" to force recalcitrants into line and make them increase their prices. Added strength to this impression is given by the fact that the bill does not become effective on any fixed date, but will come into force as the result of an Order-in-Council signed by the Lieutenant-Governor-in-Council.

This is taken to mean that if firms who are in disfavor at present were to reinstate themselves and a general increase in newsprint prices were made, the legislation now before the Legislature would never be enforced, even though adopted and sanctioned.

Says "Taschereau is Right"

The *Ottawa Citizen*, in an editorial headed "Mr. Taschereau is Right," makes the following comment on Mr. Taschereau's "pure bluff" remark:

"Because they are being asked a price for Canadian newsprint that will mean a fair return for its production, the American Newspaper Publishers' Association are talking about buying newsprint from United States mills. This, as Premier Taschereau puts it, is 'pure bluff.' No adequate newsprint supply is available in the United States, and the American Publishers' Association knows it.

"This doesn't mean that Canadian newsprint producers want, or should want, to hold up United States newspaper publishers for unjust prices. On the contrary, the actual position is that, under existing prices, with newsprint being sold in some cases for prices as low as $35 a ton, Canadian forests are being depleted, and a great national resource dissipated, for the benefit of American publishers, at a loss for Canadian investment. In other words, the existing prices are at the cost of passed dividends, defaulted interest and low wages in the Canadian newsprint industry.

"A fair price for Canadian newsprint, giving a reasonable return on invested capital, would be about $50 a ton. That price is not being received; nor anything like it. Unfortunately, and for reasons that need not be discussed here, the newsprint producers have not been able to cooperate sensibly, to determine a price for their common good. On the contrary, there has been price-cutting, secret agreements; nearly everything that was calculated to bankrupt the industry.

"The Quebec Government, perhaps belatedly, but none the less sincerely, is trying to save the newsprint industry. Trying to safeguard a national asset. Premier Taschereau's comment upon the talk of American publishers is an indication that he is not going to be turned from his course by threats both vain and foolish."

Superintendents To Meet at Glens Falls

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., April 29, 1935—A convention of the New York-Canadian Division of the American Pulp and Paper Mill Superintendents Association will be held here Friday and Saturday of this week. E. L. Puffer, of Heller & Merz, will deliver an address on "Colors Suitable for Paper Work," while E. A. Loughlin, of the dyestuffs division of E. I. DuPont de Nemours & Co., will speak on "Factors Influencing Brightness." L. H. Neilson, staff engineer of the Socony Vacuum Company will also speak. An inspection tour of the mills of the International Paper Company and Imperial Color Works is planned which will be followed by a banquet and entertainment. The convention will conclude with a golf tournament at the Glens Falls Country Club.

Demand for Paper Moderately Active In Boston

While Prominent Fine Paper Manufacturer Reports Business Improved, Others Note Quiet Conditions—Quotations on Low Priced Bristols Higher—More Favorable Weather Aids Wrapping Paper Sales—Paper Stock Attracts Increased Interest

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 29.—The wholesale paper situation in Boston did not show a great deal of change last week from that of the previous week. The average demand was fair. At the office of a prominent manufacturer of fine paper it was stated that business was "getting along better." Improvement was intimated by some wholesalers. Others noted that the call was quiet, although there was a "little something doing." On Wednesday all low-priced Bristols advanced about eight per cent in price. The weather continued generally favorable for post-Easter sales in the stores, so that wrapping paper was in some demand. Although some reported business as pretty good, others said it was slow. The call for box boards continued moderate.

Paper Stock Generally More Active

Somewhat more activity developed in paper stock generally. In old papers book stock showed some improvement. Mixed papers, however, were in light demand, as previously. There was no betterment in old newspapers, in fact, the price went down to .25 on the low side, ranging to 27½. Over-issue news was marked down to .35 from .45 @ .50. Corrugated boxes declined to .32½ @ .37½ from .40 @ .45.

Some Grades of Bags Advance

Due to the shutdown of New England textile mills, some of which were manufacturing bags, the price of some grades of bagging advanced. The situation was intensified because there is no surplus of bagging, according to report. Foreign manila rope advanced to 1.90 @ 2.00 from 1.70 to 1.80, although domestic manila rope declined to 1.50 @ 1.75 from 1.90 @ 2.00. Other grades were strong, however. Those showing advances included jute rope, which went up to 1.40 @ 1.50 from 1.35 @ 1.40, foreign gunny No. 1 to 1.55 @ 1.65 from 1.50 @ 1.60, scrap burlap to 1.25 @ 1.35 from 1.05 @ 1.15, heavy wool tares to 1.50 @ 1.70 from 1.25 @ 1.30, paper mill bagging to .90 @ 1.25 from .90 @ 1.10, and bagging No. 2 to .60 @ .65 from .50 @ .55.

New Domestic Rags Unchanged

New domestic rags remained unchanged. With the time for making repairs on houses at hand, the value of roofing rags appreciated, the No. 1 grade reaching 1.25 @ 1.30 compared with a former quotation of 1.17½ @ 1.23½, No. 2 advancing to .95 @ 1.05 from .90 @ .92, and No. 3 to .75 @ .85 from .72½ @ .80. The foreign rag situation was somewhat better, with more importation. Old fustians took a jump to 1.75 @ 1.90 from 1.55 @ 1.60 and old linsey garments to 1.95 @ 2.00 from 1.35 @ 1.45.

News of the Trade

Carter, Rice & Co. Corp. is stocking in the Boston warehouse D'Artagnan Cover, an embossed, durable sheet, made in several fancy finishes and in ten distinctive colors and black. The Worcester Division of Carter, Rice & Co. has carried this line for some time.

Charles W. Morrison, New England sales manager of the Board Division of the Robert Gair Company, Haverhill, Mass., and Mr. Gordon, of the Smith Paper Company, Lee, Mass., called on the trade last week.

A luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association was held Tuesday at the Boston Chamber of Commerce.

Norwegian Pulp and Paper Output

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1935—Only estimates are available covering Norwegian pulp and paper production during 1934. Production of both mechanical and chemical pulp increased compared with the previous year but there was a decline in newsprint output. Production of mechanical pulp was somewhat lower during the fourth quarter of 1934 than during the preceding three quarters, owing to unsatisfactory price levels and a slowing up on the demand. A number of mills closed down for short periods and others limited production to contract requirements. The year's output is estimated to have exceeded 1933 production by 25 per cent. Assuming this estimate to be fairly correct, 1934 production set a new record for the industry in Norway, exceeding the previous high record of 1,021,904 metric tons for the year 1929 by a good margin. It is anticipated, however, that the output for 1935 will be somewhat curtailed. Chemical pulp production was also lower during the fourth quarter. For the year, production totaled 407,316 tons, compared with 386,300 tons in 1933 and 411,300 tons in 1932. Most mills were able to fill their 1934 quotas under the cartel restriction program. The output for alpha cellulose for the manufacture of rayon, which is not subject to restriction, increased last year. According to a recent decision of the cartel, it has been agreed that the production restriction will be continued at 25 per cent during 1935.

German Paper Production Increases

Paper production in Germany during 1934 registered an increase of 15 per cent over the preceding year, according to a report from Consul J. F. Huddleston, Dresden, made public by the Commerce Department. Total output in the past year reached 1,989,000 metric tons against 1,730,000 metric tons in 1933.

Writing and printing paper showed the highest comparative increase, almost approaching the 1928 level. Mills producing lithographic and illustration paper were likewise satisfactorily employed during the year. Production of newsprint, however, remained at a very low level, a situation largely due to the prohibition of many newspapers and periodicals in Germany. The turnover in drawing, coated and packing, as well as parchment, carton, and colored paper, was reported to have been satisfactory.

German production of cardboard increased 25 per cent to 404,000 metric tons in the year under review. The output of paper bags showed a remarkable increase as a result of propaganda to foster the use of these in place of jute bags, the Consul reported.

Approximately one-quarter of Germany's aggregate output of paper products is produced in Saxony, the report shows.

Chicago Paper Market Conditions Little Changed

Demand for Various Grades of Fine Paper Fairly Active, With Quotations Generally Well Sustained—Writing Papers, Including Sulphites, In Persistent Request—Paper Board Section Marking Time—Waste Paper Comparatively Quiet

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 29, 1935.—The Chicago paper market provided a more or less colorless picture during the past week, those lines hitherto reported as improving carrying on in the same way and the weaker lines showing little betterment. Fringes of the various market indicate signs of summer slackening as business itself goes about hitching up its belt and looking analytically into the Fall period.

Writings provided about the brightest spot in the Chicago picture, demand increasing and the price structure continuing strong. Bonds and ledgers in general had a fair week with sulphites reported as being especially good. Index showed sufficient strength to carry a slight increase in price while books also evidenced material improvement. Ground woods were reported not so favorable, the market being characterized locally as comparatively bad and conditions spotty. Newsprint commentators gave out the same type of a report. The board market gave no evidence of material change while waste papers continued comparatively dull as far as local dealers were concerned.

Hinde & Dauch Expands

The Hinde & Dauch Paper Company, manufacturers of corrugated fiber boxes and packing materials, with headquarters in Ohio, recently purchased the plant of the Evans Fibre Box Company, 3301 West 47th street, Chicago. The Sandusky concern decided on the move to further develop and service middle western business and has moved its entire sales force and office personnel to the new plant from the former sales offices at 608 South Dearborn street. The new plant will continue to be known as the Evans Division of the Hinde & Dauch Paper Company with practically all of the employees and executives of the old Evans organization continuing with the new firm.

Eric Schuler, formerly vice president of the Evans Fibre Box Company, will serve as vice president and general manager of the new Evans Division, while George Eisermann, formerly sales manager of the Chicago Sales Division of Hinde & Dauch will act as the office manager. The plant, located in an important manufacturing district of Chicago with splendid storage and shipping facilities, is modern in every detail and has a capacity of eight cars daily. Final details of the change took place shortly after April 1.

Midwest Safety Conference

Two Chicago firms known or identified with the paper industry, the Link Belt Company and the Ace Carton Company, are taking an active part in preparations for the Thirteenth Annual Midwest Safety Conference to be held at the Hotel Stevens, Chicago, on May 8 and 9. One of the features of the conference will be an exhibit of safety equipment with 25 firms participating. Paper mills in the midwest section are being invited to attend a number of the interesting sessions including those covering Occupational Diseases; Training and Educational Methods; Commercial Vehicles; Industry and Community Safety; First Aid; Safety Equipment; Fire Prevention and Handling Materials Sessions. Awards made for meritorious safety records will feature the banquet on the evening of May 9.

News of the Trade

Following closely on the heels of the June catalog and price lists comes an impressive folder from Bermingham & Prosser and Bradner Smith & Company, Chicago jobbers, describing the new Oxford Polar Dull Coated White, made by the Oxford Paper Company. The size of the folder—10¼ x 15 inches folded—grabs attention while the title "friendly to ink" indicates the main selling feature of the new product. Some exceptionally good half tones showing such processes as filling a beater, working the paper into the rollers of a calendering machine and the pick test, are included in the advertising piece. Oxford Polar is offered in six sizes and from 70 pound to 120 pound base. The new metal container designed as a work-tool for buyers of paper, is also given a special play.

The Eddy Paper Corporation enjoyed both a higher volume of business in the first quarter of 1935 and a larger net income, according to J. W. Kieckhefer, president. Improvement in the first quarter of 1935 followed upon the gains made in 1934 when the company earned a net profit of $360,648 after several years of unsatisfactory operation. The offices of the company, which makes shipping containers, are located at 919 North Michigan avenue.

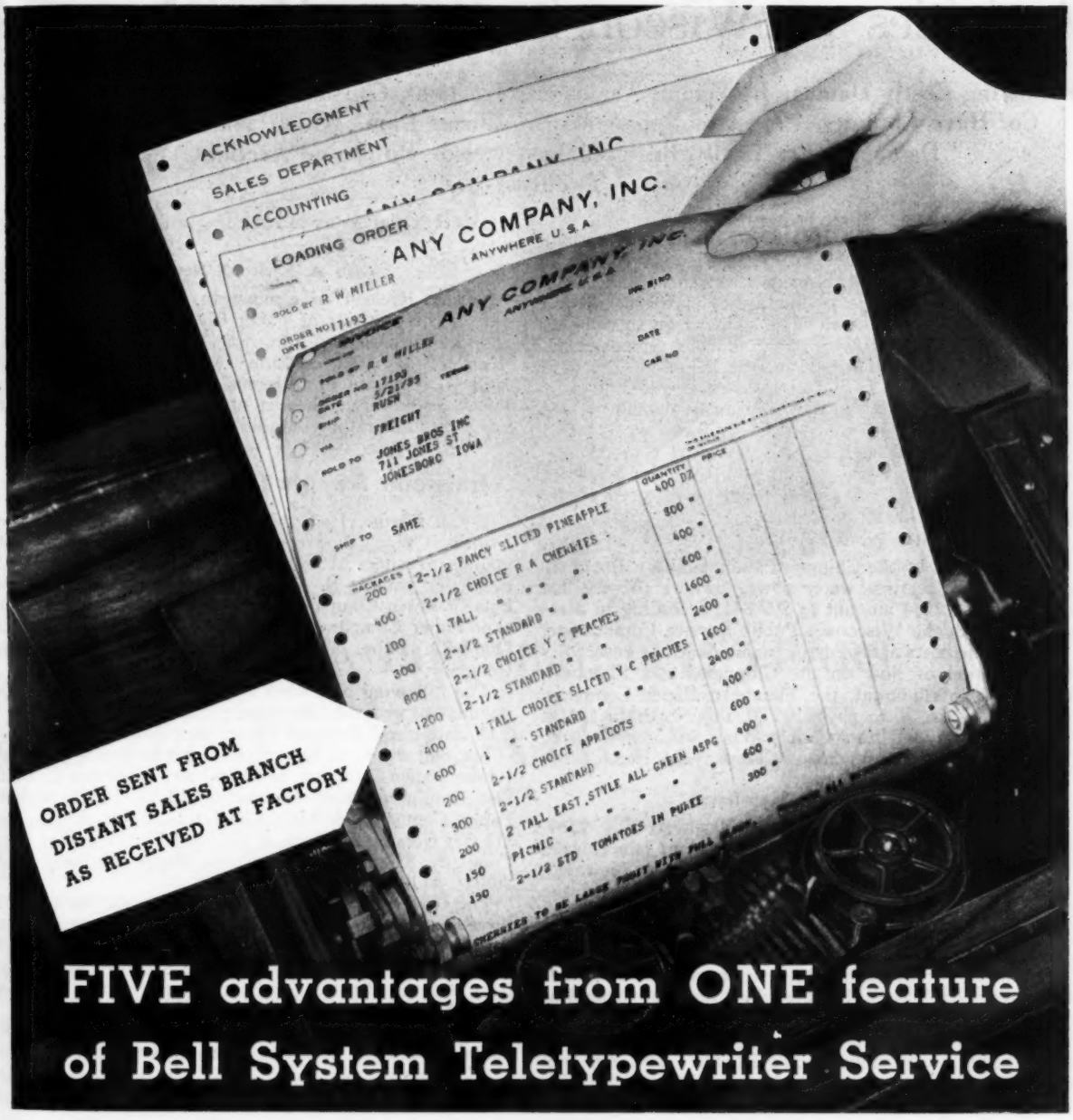
The Brown Paper Goods Company, 900 West Lake street, has recently announced two popular service innovations. An art department has made available to customers without charge "to help design a more effective envelope and to create a distinctive envelope." A special service has been created to promote standardization methods through analyzing envelope requirements, eliminating unnecessary sizes, recommending more suitable or economical paper, reducing excessive inventories and solving storage problems. The service is available to all customers of the envelope manufacturing concern.

Chicago reports, as shown in *Business Week* for April 20, indicate that the game of bridge and its increasing popularity has done a lot to stimulate the consumption of paper. The discussion says that in 1934 retail sales of cards totaled $13,500,000—a total of 45 million packs of cards. The recent changes in scoring and laws of bidding have resulted in a tremendous demand for new books, score tabs, etc., in the Chicago area—and of course nationally. Several Chicago dealers who neglected to order the new score pads were completely swamped when the changes came along. The new books are in equally heavy demand. It looks as though bridge—and the Culbertsons—have done a lot for a certain division of the paper industry.

Bowers Envelope Co. Reorganizes

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 29, 1935.—Officials of the Bowers Envelope and Lithograph Company of Indianapolis, makers of envelopes and other containers, have filed papers with the Indiana secretary of state showing a reorganization of the company with 183 shares of preferred stock having a par value of $100 a share and 1,500 shares of common stock having no par value.


ACKNOWLEDGMENT
SALES DEPARTMENT
ACCOUNTING
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ANY COMPANY, INC.
ANYWHERE U.S.A.
SOLD BY R W MILLER
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PACKAGES
200 2-1/2 FANCY SLICED PINEAPPLE 800
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200 2 TALL EAST STYLE ALL GREEN ASPG 600
150 PICNIC " " " " 600
150 2-1/2 STD TOMATOES IN PULP 300
CHERRIES TO BE LARGE FRUIT WITH FULL SYRUP
ORDER SENT FROM
DISTANT SALES BRANCH
AS RECEIVED AT FACTORY

FIVE advantages from ONE feature of Bell System Teletypewriter Service

THOROUGHLY tested by many companies is the "form-writing" feature of Bell System Teletypewriter Service—*typing by wire.* A device synchronizes the position of continuous forms or pages on both sending and receiving machines. This makes possible the simultaneous typing of orders and invoices—between adjacent buildings or distant branches—with several identical typewritten copies at each end.... And with these results:

1. *Saves time.*
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Activities of Wisconsin Paper Manufacturers

Following Costly Damage by Spring Floods and Ice Jams, Consolidated Water Power & Paper Co. Have Completed Most of Repair Work—Biron Dam, Which Was Most Seriously Damaged, Practically Restored Last Week—Pulpwood Available Within Twenty Years

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 29, 1935—Most of the repair work has been completed by the Consolidated Water Power and Paper Company on its two dams on the Wisconsin river, following costly damage by spring floods and ice jams several weeks ago. The spillway on the dam at the Wisconsin Rapids, Wis., mill is back in condition. While the work was under way, the height of the dam was raised six inches so as to improve the water flow.

The dam at Biron, the most seriously damaged, was practically restored last week. The spillway was carried away entirely. The level of the river was down seventeen feet while the work was in progress. Large crews were at work so the river level could be restored at the Biron mill as quickly as possible.

Water Power Owners Assessed

Tolls assessed by the Chippewa and Flambeau Improvement Company against water power owners for the last six months of 1934 amount to $97,841, according to a report filed with the Wisconsin Public Service Commission. These are the costs assessed for maintenance of reservoirs and regulation of flow on the Chippewa and Flambeau rivers. Of this amount, the Flambeau Paper Company, Park Falls, Wis., is to pay $10,770, the Northern States Power Company of Eau Claire, Wis., $63,589, and the Eau Claire Dells Improvement Company of Eau Claire, $12,064.

John Lindblom Transferred

John Lindblom, manager of the Newaygo Tug Line, Inc., Ashland, Wis., has been transferred to Isle Royale, Canada, to supervise logging operations of the Newaygo Timber Company. Both companies are affiliates of the Consolidated Water Power and Paper Company. Mr. Lindblom previously was stationed at Ashland, Wis., where he had charge of the rafting of pulpwood across Lake Superior from Canada to the Consolidated rail loading hoist. Logging will be carried on the year around at Isle Royale, with a crew of 200 men in summer and 75 in winter. This summer's work will represent the first cutting of pulpwood done at Isle Royale. The logs will be made up into rafts there and towed across Lake Superior by the tug Butterfield. Peter Krogen, who has been employed by the International Lumber Company at International Falls, Minn., will succeed Mr. Lindblom as manager of the Newaygo Tug Line, Inc.

Reforestation Operations Expand

Expansion of reforestation operations by the federal government, and by the State of Wisconsin will mean that merchantable pulpwood will be available for paper mills within twenty years, according to Earl W. Tinker, Milwaukee, United States forester for the Lake States section. At the present rate of logging, Wisconsin's supply will be exhausted in about fifteen years. A plan is being worked out that will surround the protected forests with productive farms, and the occupants of the farms will be given part time employment or winter work in the forest areas. This will help solve a labor problem, and the difficulties faced by farmers in those sections in making a living. A program of selective cutting also is being worked out so as to save the timber as much as possible.

Nils A. Kjelson's New Post

Nils A. Kjelson, of Sheboygan, has been added to the staff of the Institute of Paper Chemistry, Appleton, Wis., as technical assistant, according to announcement of Dr. Henry M. Wriston, director. Mr. Kjelson is a graduate of the University of Wisconsin, and formerly was employed as research chemist at the United States Forest Products Laboratory, Madison, Wis.

Bids and Awards for Government Paper

WASHINGTON, D. C., May 1, 1935—The Government Printing Office has received the following bids for 450,000 pounds of supercalandered book paper, all bids at 4.98 cents per pound; R. P. Andrews Paper Company, Perkins-Goodwin Company, Stanford Paper Company, Whitaker Paper Company, J. W. Butler Paper Company, Old Dominion Paper Company and Mathers-Lamm Paper Company.

The following bids were received for 1,000 sheets (367 pounds) of red sulphite paper; Tarentum Paper Mills, at 8.11 cents; and Reese & Reese, Inc., 5.63 cents.

For 800 sheets of brown photo mount board; Mathers-Lamm Paper Company, at $11.60 and $7.50 per C sheets; Old Dominion Paper Company, $13.30; R. P. Andrews Paper Company, $10.50; Charles G. Stott & Co., Inc., $11.60; George F. Muth & Co., $11.71; Whitaker Paper Company, $10.87; and Enterprise Paper Company, $6.50, and $6.40 less 2 per cent.

The Government Printing Office has split the award in three parts for 450,000 pounds (450 rolls) of supercalendered book paper in 38-inch rolls at 4.98 cents, to the R. P. Andrews Paper Company, the Stanford Paper Company and the Perkins-Goodwin Company, bids for which were received on April 19.

The R. P. Andrews Paper Company will furnish 14,400 pounds of 25 per cent rag, 26 x 36 buff ledger paper at 11.543 cents per pound.

Leeds & Northrup Co. and George Kent Ltd. Announce Limited Agreement

An agreement, applying only to the sale of industrial electro-chemical instruments and certain types of flowmeters, has been consummated between Leeds & Northrup Company of the United States and George Kent Ltd. of Great Britain. Under this agreement, Kent will not offer its industrial electro-chemical instruments or its flowmeters for sale in the United States or Canada unless through Leeds & Northrup, while Leeds & Northrup will not offer its similar instruments for sale in the British Empire (except Canada) unless through Kent. Neither the sale, in the States by Builder's Iron Foundry, of Kent venturi and shunt type rotary meters, nor the sale anywhere by either company or its agents, of products other than those specifically mentioned is in any way affected.

WHERE A LIFETIME IS 15 YEARS

and the 15 YEARS ARE UP!

IT is conceded by many that the top efficiency lifetime of any paper machine is 15 years. So, since 81% of the paper machines now operating were installed *prior to* 1920, this year of 1935 finds most of them beginning to run up excessive costs—wasting power, slowing up production, increasing the number of repairs. ¶ Even if your machine investment has long been written off your books, you cannot write off those excessive operating costs. ¶ Far cheaper than to let them continue is to modernize your machines—which, in many cases, will suffice to insure efficient operation for more years to come—without waste, without loss of time, and without the drain of constant repairs. ¶ An S & W Modernization Engineer, called in to inspect your paper making machinery, will—without charge or obligation—tell you where (and for how much) you should have those important improvements made. ¶ Later, if you wish, working with you and your consulting engineer, S & W, builders of the two widest Fourdriniers operating today on the finest tissue and condenser papers, will make use of its experience to make rehabilitation, for your mill, a low-cost process. ¶ A letter to S & W will schedule a call. Meantime, you may wish, like many of your neighbors, to read "Carrying the Torch," which tells a dramatic story of paper making in this country and S & W's experience and present facilities. Write for it today.

The CONSULTING ENGINEER *has a Part in the Picture*

★

The SMITH & WINCHESTER *Manufacturing Company*

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

Demand for Paper Rather Spotty in Ontario

Some Manufacturers of Paper Experience Slight Decline In Volume During March and April —Report Price Fluctuations—Producers State, However, That Tonnage During First Four Months Showed Increase Over Corresponding Period of 1934

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 29, 1935—With the closing of the fourth month of business for 1935, the various paper producing firms say that, on the whole, the increase in tonnage is slightly over the corresponding period of last year. January and February were well ahead of the first two months of 1934 so far as book and writing papers are concerned but March showed a falling off. With some mills this decline was greater than with others and it is believed April sales will not come up to last year's total. Executives, however, look for a considerable improvement in May. There is no doubt that business of late weeks has been spotty and not altogether satisfactory owing to the fluctuations both in price and demand. So far as the wholesalers are concerned, there is a feeling of optimism in that printers are figuring generally on some large contracts which are expected to break at any time and give impetus to the industry. Stock with consumers are very low and need replenishing. When there is more "life" and buoyancy to business there will be freer buying and larger turnovers.

Newsprint Conference Planned

It is expected that in the near future there will be a conference on the newsprint situation between Premier Hepburn of Ontario and Premier Taschereau of Quebec. Mr. Hepburn says it is hoped some agreement concerning newsprint export will be reached so as to eliminate in future cut-throat competition between newsprint mills of the two provinces. It is expected that the Hon. Peter Heenan, Minister of Lands and Forests for Ontario, will sit in at the conference and rumor has it that it was pressing problems in regard to the newsprint and timber industries which brought Mr. Heenan back to Toronto from his British Isles holiday somewhat in advance of the schedule his physicians set for him. No official statement is so far available from the provincial authorities respecting the progress of the Lands and Forests Department is making with its reallocation of timber limits in Ontario. Pulpwood holdings are affected by the policy of the government and in this connection, it is definitely learned that the limits of the Abitibi Power and Paper Company, negotiations for the acquisition of which by outside interests have been under way for some time, will be realigned. Before the Ontario government definitely completes its reallocation program, it is expected that several officials of the Lands and Forests Department will be either shifted to other work or retired from the service altogether.

Interlake's Satisfactory Report

At the annual meeting of the Interlake Tissue Mills, Ltd., which was held in Toronto recently, satisfactory reports were presented on the operations of the past year and the usual dividend of six per cent was declared. The officers of the company were reappointed for the coming year as follows:—President, George Carruthers; vice-president and treasurer, S. F. Duncan; secretary, W. J. Parks. During the past few months extensive improvements have been carried out at the plant in Thorold. A new Vortex beater, a napkin folder, and a napkin wrapping machine have been added to the equipment, while extensive repairs have been made to No. 2 machine, bringing the equipment thoroughly up-to-date. So far business in the various lines of the company has been running well ahead of the corresponding months of last year.

New Pulpwood Policy

In the past no export of pulpwood cut from the Crown lands of the province has been permitted by the Ontario government. This state of affairs has prevailed for many years but now the bars are partially being let down and export of wood from Crown lands will be permitted under special license wherever and whenever the practice does not interfere with the existing market. Settlers on Crown lands will be given the privilege of cutting wood for the United States market.

In making announcement of the new policy adopted by the Ontario government, the Hon. M. F. Hepburn, premier of the province, stated "There is no reason why we should not use our natural resources to the limit in times of distress like these and the policy we have adopted will provide employment in the northern part of Ontario. No licenses will be issued promiscuously and every care will be taken by the Department of Lands and Forests to see that the permitted export does not come into competition with the finished product."

News of the Trade

Charles W. Cox, Mayor of Port Arthur, and representative of that constituency in the Ontario Legislature, who is one of the extensive pulpwood operators in the Thunder Bay area, says that the new policy will open up a sap peeled market for the Lakehead district of a value of over one million dollars a year. It would make an outlet to the south for Ontario wood bringing to the province a market that it had been seeking for years.

S. F. Duncan, of Toronto, president of Provincial Paper, Ltd., returned recently after spending several weeks at Pinehurst, North Carolina.

It is reported that Beniah Bowman, of Manitoulin Island, who is a former Minister of Lands ond Forests for the province of Ontario, will be appointed at an early date as Deputy Minister for this department.

M. J. Ashley Dead

Moses James Ashley, sulphite superintendent of the Great Lakes Paper Company, Fort William, Ont., and a resident of that city for the last seven years, passed away on April 23, aged 46 years. His death came as a sudden shock to his many friends, for although he was convalescing from a late illness, he had apparently recovered. While taking an automobile ride he again became seriously ill and was rushed to the hospital where he succumbed in a few hours. At the age of sixteen Mr. Ashley was employed by the J. J. Rogers Company, of New York, and later was with the Backus-Brooks Company at International Falls, Minn. He was moved to Fort William seven years ago to assume the position which he held at his death. He is survived by two daughters and one son, three brothers and a sister, all residing in the United States. Mr. Ashley was a prominent member of the Masonic Order.

Two Reasons WHY GOODRICH RUBBER makes better TABLE ROLLS

Reading time 45 seconds

Made of special mechanically uniform rubber, Goodrich Dukbak Rolls do a better job in both their important tasks—supporting the wire and removing water:

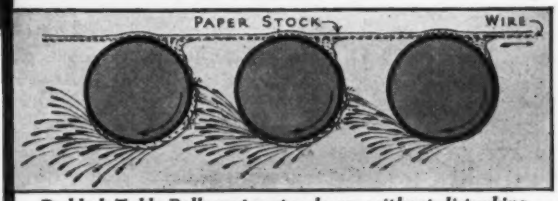
1 Due to the perfectly even roll surface, they travel at the same speed as the wire, and so remove water more efficiently. This surface is always even because it is made of a tough rubber which resists wear, and does not develop destructive high and low spots.

2 The rubber covering of Goodrich Dukbak Rolls is specially compounded to have a low affinity for water—as low as a duck's back. This rubber carries the water down and away—not around and up against the bottom of the wire.

There are many other advantages of Goodrich Rolls—they are lighter, their rubber surface is non-abrasive, they can be straightened if injured by dropping, and after years of service they can be reground as good as new. These rolls have so many features—they are such a sure way to better paper at lower cost—that every mill should know all about them. Send for your free copy of "Modern Trends in Table Roll Construction," by E. Peterson, Goodrich specialist in paper-mill rubber goods. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.

Steps in making Goodrich Table Rolls, from the metal core at left to the finished product at right.

Brass table rolls throw water up against the bottom of the wire.



Dukbak Table Rolls cast water down, without disturbing formation.

ALL *products problems* IN RUBBER

DUKBAK *Rubber Table Rolls*

ROLL COVERINGS • BELTING • HOSE • MISCELLANEOUS RUBBER PRODUCTS

Paper Demand in Philadelphia Shows Spurt

Both Fine and Coarse Paper Divisions Show Improvement—Board of Governors of the Philadelphia Paper Trade Association Meet on Tuesday, With Norbert A. Considine Presiding—Hooper Paper & Twine Co. Holds Fourteenth Annual Banquet

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 29, 1935—As forecast in these columns last week, paper demand here is experiencing a spurt in both fine and coarse divisions.

Board of Governors Meet

The meeting of the Board of Governors of the Philadelphia Paper Trade Association, which was postponed from April 10, was held at the Downtown Club at 12:30 on Tuesday. Norbert A. Considine, president of the association, presided.

Hooper Paper & Twine Co. Dines

The Hooper Paper and Twine Company's precedents for annual banquets were sustained by the fourteenth annual celebration held in the Ivory Room of the Adelphia Hotel on Tuesday evening, April 23. Entertainment and inspiration given in a setting made brilliant by the flood of lights and the presence of the ladies provided hours of delight around which might cluster many memories of this outstanding occasion.

Seated alongside of Mr. Hooper were Mrs. Hooper and their charming daughter, Miss Sarah Hooper, and the guests who included Mrs. Fred W. Sutterle, Shanghai, China, Mrs. Katherine H. Norman, Philadelphia, Morrison Moose, Richmond, Va., O. Kai Madsden, Baltimore, Md. and Mr. Harry Platt, West Chester, president of the Paper and Cordage Association of Philadelphia, and Philadelphia representative of the Denney Tag Company.

The employees, in whose honor this annual get-together was given, and to quote Mr. Hooper—"Those who have taken part in the growth of the organization," are Edwin V. Rementer, Preston T. Rhodes, Miss Dorothy C. Shelley, Miss Bertha Walter, James T. Stewart, John J. Schaffer, Albert Long, William C. Kramer, John W. Wilkinson and Justin Martin.

This celebration was the occasion of awards made by the Hooper Paper and Twine Company, Albemarle Paper Manufacturing Company, Richmond, Va., Badger Paper Mills, Peshtigo, Wis., and Orono Pulp and Paper Company, N. Y., to the salesmen winning the most points in a contest running from January 1 to April 17.

Mr. Hooper Speaks

Mr. Hooper spoke in glowing terms of the efficiency of his staff, and in part, said: "Last night I looked at the stars and tried to get back to nature. I wonder sometimes if we will ever get back. There is no question but that those who attained the most success in this world got it by the sweat of their brow—by success, I do not mean material gain, for that savors of tangible things. If we wish to enjoy the fruits of our labor in proportion to what we are entitled we must do it by the sweat of our brow. The world all about is watching every movement we make, and while we are not cognizant of the fact everyone is being watched by friends and business associates who classify us as desirable or undesirable, successful or unsuccessful. We cannot be fairly successful or fairly unsuccessful—we have to be one or the other. I would like to drift back to April 23, 1921, when the organization that is represented here this evening had its inception. I realize that the paper business is not a new business by any means. There are numerous houses in Philadelphia and all over the country, some more successful than others. Our organization was established on certain definite principles, and, thank God we have lived up to them, and today we justifiably enjoy the confidence of those with whom we come in contact.

"We did not take advantage of the confidence and trust reposed in us, and all you gentlemen have helped us fulfill these principles. I do not know of any other organization in Philadelphia, big or little, man for man, that will fight as hard to maintain its integrity as we in this organization. And I have no hesitancy in saying that a great measure of our success is due to our wives, because gentlemen without the assistance of our wives we would not progress very far.

"It goes without saying that it is necessary for us to earn a livelihood and acquire a proportion of material wealth, but there are other things equally essential. It is vital for the welfare of all to get back to nature with standards on the fundamental principle of life, so ably exemplified by our predecessors—the pioneers of this country, and the sooner we get back to the Sermon on the Mount, the sooner our ideals will be realized. Those who are sincere cannot help but succeed, and I want to say right here that I do not know of any man who is in a better position to tell whether a man is sincere or not than the man who comes in contact with salesmen. My hat is off to the salesman who struggles along over a period of time, learns the business, who is sincere and wins out. It is up to us to set our goal and if we have the right kind of material in us, we cannot help but attain it."

Other Speakers

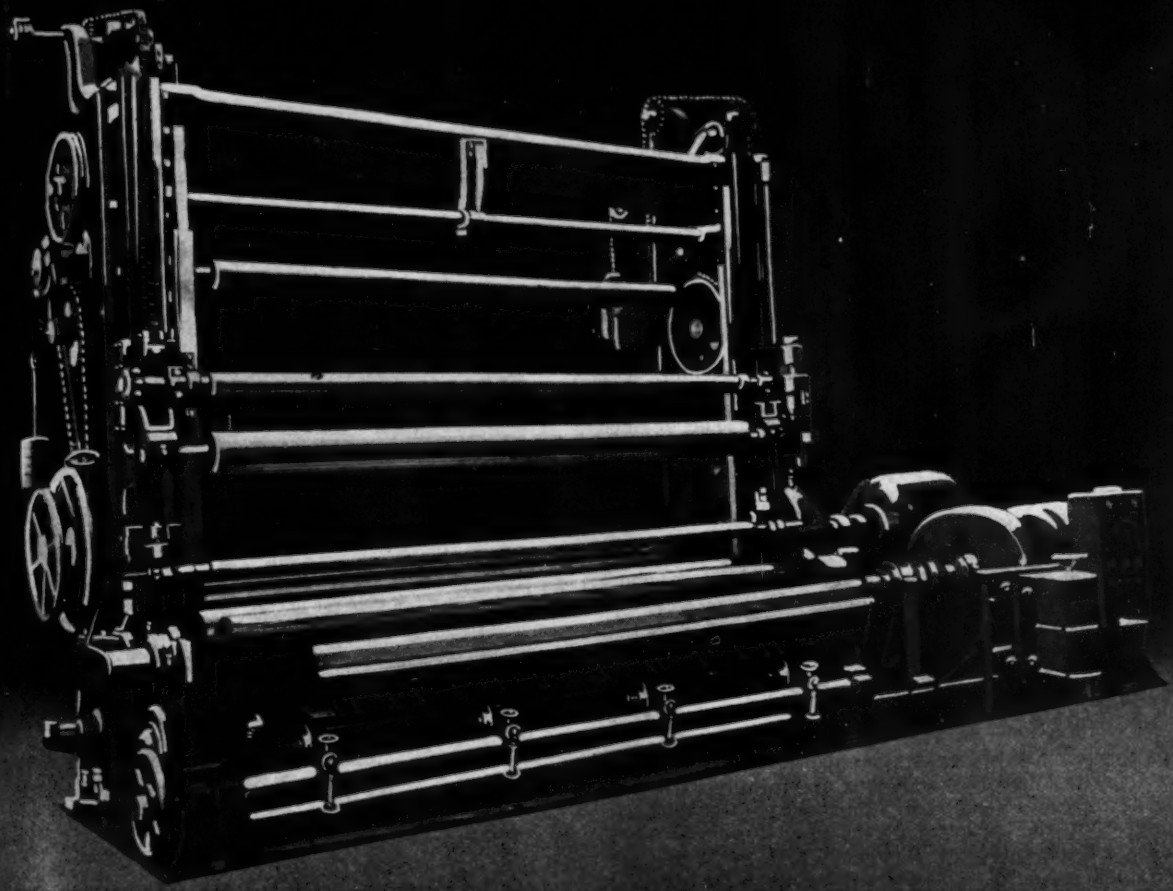
After presentation of the awards to the respective winners, Mr. Hooper called on O. Kai Madsden of Baltimore. Mr. Madsden cited the importance of confidence in his fellow man, citing parables from the Bible, showing the lack of confidence even the Apostles had for Christ, because he was a man among them. He said that Christ was symbolical of the greatest salesman that ever lived, showing that salesmanship was as old as time itself. "Let us have confidence—one in the other—and if a man has done you a wrong, call him for it but do not lose confidence in him. We cannot accomplish results without interdependence—one on the other—which is so vital to our existence."

All those in attendance then retired to the card room where miscellaneous games were played and exquisite prizes presented to those with the highest scores.

General News of the Trade

The recently reorganized Paper Bag Group has announced the election of the following officers for the ensuing year: David Back, of Enterprise Paper Company, president; B. Magid of Magid Paper Company, vice-president; R. Jeffries of J. T. Whitte & Company, treasurer and secretary. Frank Dubin, president of Dubin Paper Company was appointed chairman, and Arthur Lewis, secretary.

Recent additions to the selling force of the Schuylkill Paper Company are Martin McCann and David H. Thomas, the latter formerly with Thos. W. Price Co.



SHEAR CUT
IS A
CLEAN CUT

SAMUEL M. LANGSTON COMPANY
CAMDEN, NEW JERSEY

New Forming Machine for Wall Board, Insulating Board and Heavy Sheets

By Charles L. Ellis[1]

The Downingtown Patented Forming Machine is a complete unit comprised of a pressure forming chamber, a primary press section and main presses. The detailed design of the various units is modified to suit individual requirements.

Forming Chamber

The forming chamber is an enclosed space, the side walls of which are especially designed to contain the stock and to permit the free passage of the traveling wire which constitutes the floor of the chamber. This wire is supported by table rolls which are mounted in anti-friction bearings. The top of the forming chamber slopes from the inlet to the outlet; the discharge section of the top being pivoted to allow vertical movement.

Primary Presses

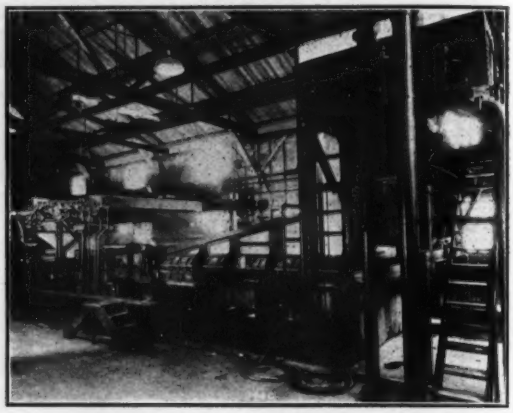
The top primary presses are carried in arms which are pivoted on the movable section of the forming chamber, thus these parts automatically "breathe" or accommodate themselves to the thickness of the sheet produced. Regardless of the thickness of the sheet, a constant, predetermined pressure is maintained on the board by hydraulic cylinders, which are operated in conjunction with accumulators. This flexible coordination of the forming and primary press sections permits the manufacture of a wide range of board thicknesses, without making any mechanical change in the machine itself.

Main Presses

The main press section consists of two or more sets of rolls, the exact number depending on the characteristics of the material handled by the machine.

Clothing

The arrangement and travel of wires and felts varies depending on the kind of raw material used and the finish desired. In the illustration shown below, the bottom or forming wire travels from the bottom breast roll through the forming chamber, the primary presses and the main presses but it may be arranged to return after the last primary and another bottom wire or felt used through the main presses. The top wire enters the forming chamber at the leading edge of the top pivoted section of the forming chamber and returns after the last primary. A second top wire or felt is used in the main presses but, if desired, one top wire can be used continuing from the top breast roll in the pivoted top section of the forming chamber, through the primary and main presses and then returning. The adaptability of the machine to various conditions and requirements is thus evident for it may be clothed with two wires, two wires and one felt, two wires and two felts or four wires.

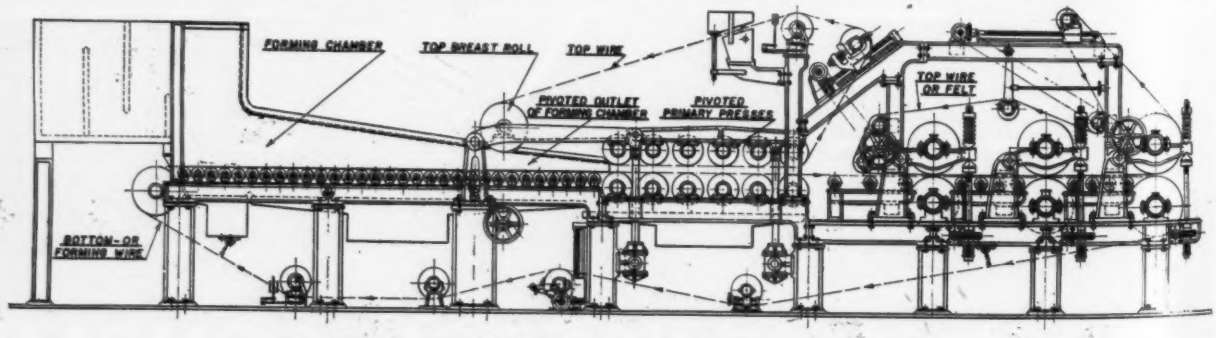


MACHINE INSTALLED IN PAPER MILL

Operation

The stock is pumped from the storage chest to a carefully designed proportioning head box, in which a consistency regulator may be mounted, if desired. The stock then flows into a mixing chamber, where it is diluted with white water, from the white water head box and it then passes into the forming chamber. Water rapidly flows through the bare wire as it enters the forming chamber, depositing a mat of fiber on the bottom wire. Water is continuously drained through the mat and wire as it passes through the forming chamber, and more fibers are gradually deposited at a reduced rate, until the first primary press rolls are reached. As the newly formed sheet approaches the outlet of the forming chamber, it comes in contact with the top wire and is gradually compressed

[1] First Vice President, Downingtown Mfg. Co., Downingtown, Pa.



DETAIL OF NEW DOWNINGTOWN PATENTED FORMING MACHINE

★FIRST IN THE FIELD!

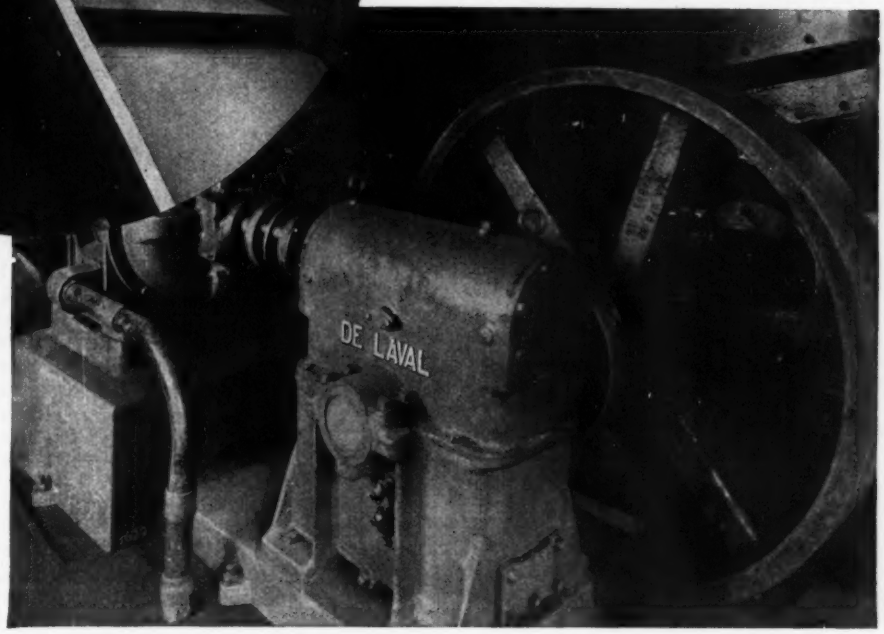
● *EBG is the pioneer producer of Liquid Chlorine in America – the oldest, the most experienced. EBG history is a record of famous firsts★ first in the field of textile bleaching ★ first in water sterilization ★ first in the bleaching of pulp and paper ★ first in the bleaching of shellac! Small wonder that EBG is the first choice of those who demand purity and uniformity in Liquid Chlorine — and steady, reliable service in supplying it!*

ELECTRO BLEACHING GAS COMPANY • MAIN OFFICE: 9 EAST 41ST STREET, NEW YORK, N. Y. • PLANT: NIAGARA FALLS, N. Y.

EBG Liquid Chlorine

FIRST IN THE COUNTRY

Shaking Coal is HARD ON THE DRIVE—



De Laval 11⅓ ratio worm gear which transmits 40 hp. from 1200 r.p.m. motor to drive shaker screen at coal tipple.

but the De Laval Worm Gear does it Efficiently and Reliably

because it is correctly designed and constructed from suitable materials, adequately lubricated and thoroughly protected from grit and moisture.

Beyond seeing that the oil level is correct, it requires practically no attention. Nearly every plant has drive problems which De Laval Gears would solve most satisfactorily.

They are exceptionally compact, silent, safe, durable and convenient, as well as efficient.

After studying your requirements, our engineers will recommend the most suitable drive arrangement.

DE LAVAL STEAM TURBINE CO. TRENTON N.J.

Manufacturers of

Steam Turbines . Centrifugal Pumps . Propeller Pumps
Rotary Displacement Pumps
Centrifugal Blowers and Compressors
Helical Speed Reducing Gears
Worm Gears. Hydraulic Turbines
Flexible Couplings and Special Centrifugal Machinery

Sole Licensee of the Bauer-Wach Exhaust Turbine System

1078

DE LAVAL STEAM TURBINE CO.. TRENTON. N.J.

between the two wires as it approaches the nip rolls, or first pair of primary presses. A large volume of water is expelled from the sheet as it passes through this pivoted top outlet section and a special opening is provided in the top plates to permit its removal without disturbing the original formation of the sheet. As the sheet travels through the primary presses, between the two wires, the added pressure of each roll is very slight, thus removing the water from the sheet without subjecting it to any disturbing influences. After the last primary, the sheet passes into the main press section, along with wires or felts, as described in the foregoing paragraph.

Advantages

Formation takes place in large unrestricted space allowing the fibers to settle down undisturbed.

The force of gravity always assists in the formation. Any tendency for the stock to settle helps rather than interferes with the formation.

Formation takes place under uniform hydrostatic pressure in the entire forming chamber.

This type of machine will handle very free stock and an abundance of water.

Due to large free forming space, long fibers form excellently.

The machine not only handles long free fiber but also short slow fiber; in fact it will handle any fiber that will form a board and make the best board that can be produced from the given fiber.

Formation takes place in a straight line and the sheet is not bent or disturbed from the time formation begins until the final pressure is completed.

No auxiliaries are required.

Power requirements are very small. An eight-feet wide machine will absorb approximately seven to eight horse power.

The wires are easily cleaned without diluting white water or stock. The long runs outside of the forming chamber provide ample time and space to thoroughly clean the wire where there is any tendency for the stock to adhere and the shower water does not flow into the white water chamber, thus preventing any undesirable dilution.

The thickness of the board produced is limited only by the quality of the stock. The laboratory machine has produced board from .080 inch to 1¾ inches in thickness.

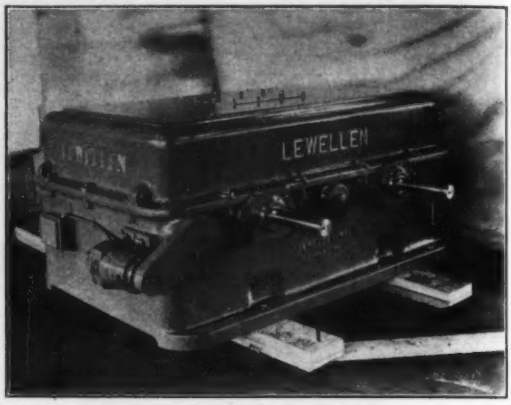
Unity Paper Corp. To Reorganize

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., April 29, 1935—Federal Judge Frederick H. Bryant signed an order last week giving the Unity Paper Corporation permission to reorganize. The company recently filed a bankruptcy petition in the United States Court at Utica and under reorganization a plan will be submitted within 90 days. On April 22 the petition filed with Judge Bryant brought out that the concern lacked working capital and was being sued by a creditor. Harry M. Ingram, president, signed the document which was filed through attorneys of the company. An order has been announced by the court directing the debter to give notice that a hearing will be held at Malone on May 17 to determine whether the business will be continued by the debtor or by an appointed trustee. Authority has been given the company to issue certificates for $20,000 to provide working capital. The financial statement shows liabilities of $178,634, not including $100,000 stock, and assets of $238,611 including land and plant, $195,359; accounts, $21,087, and stock and raw materials, $19,619. Mortgages amount to $115,900 and accounts payable, $66,558.

Largest Completely Enclosed Variable Speed Transmission Ever Built

The illustration presented herewith represents a No. 175 class "D" completely enclosed Lewellen variable speed transmission equipped with electrical remote control. This transmission is installed in a large Indiana roofing plant and drives two complete roofing paper machines. Dimensions of the transmission, are, over-all length 84 inches,



width 54 inches, (not including shaft extensions), height 38½ inches, weight 5620 pounds, capacity 40 hp.

This is a complete ball bearing transmission. All of the interior parts including the ball bearing thrust bearings, discs, and shaft bearings, are lubricated from one end of each shaft. This transmission is operated under twenty-four hour service, six days per week. All the parts are lubricated while the transmission is running.

This is the largest completely enclosed variable speed transmission ever built and is now in production as one of the standard sizes built by Lewellen Manufacturing Company, Columbus, Ind.

Indianapolis Demand Improves

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 29, 1935.—The first week of real spring weather resulted in some slight increase in business in some lines. For the first time this year there was seen some buying of summer specialties. Paper plates, towels, napkins, cups and other similar merchandise was being bought in fair quantities. The volume was not so large, but continued warm weather will see business in these lines pick up quickly.

Transparent papers are moving in fair volume. A good demand is seen from the makers of shirts and other textiles. Makers of paper bags for the fruit and vegetable trade in Indiana should enjoy a good business this year for prospects now point to perhaps the largest peach and apple crop the state ever has had. The vegetable crops that usually are packaged in this sort of bag also will be heavy.

Printers are taking a fair amount of fine paper, most of it for delayed direct by mail campaigns which have been held up because of cold weather.

Box factories are watching national legislation with a wary eye. The fate of NRA and the prospects of a 30-hour week are of much concern to them. Generally speaking, box demand last week held steady and is expected to be slightly better in May than it was a year ago.

Paper stock executives here report some mill demand, but prices are low. Most of the demand continues for better grades of paper and rags.

Delaware Valley TAPPI Discusses Color

Past and Present Development in the Dye Industry, a paper by August Merz, vice president of the Calco Chemical Company, Bound Brook, N. J., featured the meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held at the Engineers Club, Philadelphia, Pennsylvania, Friday evening, April 26, 1935. Harvey P. Cannon of the Container Corporation of America, presided as chairman.

Nominating Committee Reports

E. N. Wennberg of the Continental-Diamond Fibre Company reported for the nominating committee as follows: Chairman, 1935-36 Harvey P. Cannon; Vice Chairman, H. C. Schwalbe, Dill & Collins Inc.; Secretary-Treasurer, C. M. Connor, Glassine Paper Company and Valley Forge Laboratories; Executive Committeemen, D. Manson Sutherland, Consulting Engineer, Trenton, N. J.; and G. E. Landt, Continental-Diamond Fibre Company, Bridgeport, Pennsylvania. The election of officers will be held at the meeting on May 24th at Philadelphia.

August Merz on Color

Believing that the paper industry as an important consumer of dyes would be interested in the history and development of the dye industry, Dr. Merz devoted his contribution to the meeting to this subject.

The recovery of coal by-products became necessary when coal began to be coked to permit the manufacture of illuminating gas. One of the important products is benzene which reacts very readily with chlorine and many elements and compounds, and by means of polymerization, it may be made to react with itself to form other organic chemicals of great commercial value. With chlorine it forms monochlorbenzene which in turn forms nitrochlorbenzene when treated with nitric acid. This chemical and dinitrochlor benzene form the basis of many chemicals including the dyes used in the paper industry.

By treating benzene alone with nitric acid nitrobenzene is formed and from this aniline is produced, the basis for hundreds of dyes. By reacting with methyl alcohol aniline produces dimethyl aniline from which nearly any color may be made, including the red of ehodamine, the yellow of auramine, the green of malachite and the purple of methyl violet.

From dinitrobenzene is manufactured chrysoidine and bismark brown. From aniline is found the well-known fuchsine or magenta and the whitening agent called aniline blue.

Less than one hundred years ago the dyer was dependent on natural products for his dyes. Indigo, madder, wood and berry extracts and insects. In ancient times royal purple was obtained from a tiny mollusk. In about the middle of the century, William Perkin, an English chemist, found that aniline could be made from quinine. Years before someone had tried to break down indigo and thereby obtained an oil which he called aniline because it emanated from indigo which, in Portuguese was called anil. Perkin tried this experiment but instead of getting white quinine he obtained a purple color and appreciating the commercial possibility established a plant to manufacture the new dye. If Perkin had not used an impure benzene containing toluidine he would not have obtained his mauve.

It was soon found that alzarine or madder could be made from anthracene, another coal tar product. German chemists found that phthalic anhydride, a product obtained from the coal tar derivative naphthalene which was plentiful was an excellent dye base but it was not until the contact sulphuric acid process was developed that the conversion processes were possible. From ten basic substances there are 1200 different compounds marketed as dyes. With the exception of madder, indigo and Tyrean purple, none of these are duplications of products found in nature.

In spite of the opinion expressed years ago that the basic dyes were on the way out, these have continued in use. Ways of improving their fastness to light and to bleeding have been discovered. Methods of reducing them to insoluble pigments, which because of their physical form, show an apparent distributability almost equivalent to solubility, have given them a new lease of life, which should help to continue their popularity in the future.

Azo dyes, produced from aniline with amino groups now account for about one half of the dyes used.

In response to a number of questions brought up by members during the meeting, the following points were made:

Mordents can be used to prevent bleeding of boards.

If the thickness of liner varies the color distribution will not be uniform.

Colors are sensitive to temperature and acidity.

Colors precipitated by mordents are duller than colors applied in other ways.

Wetting agents are helpful and it is possible to get agents that will not cause frothing.

Those Who Attended

Among those present were the following: J. Carl Schmidt, Du Pont Company, Philadelphia; Dr. J. Razek, University of Pennsylvania, Philadelphia; Roger Brown, Consulting Engineer, Trenton, N. J.; P. V. Barrow, Dill & Collins Inc., Philadelphia; D. S. Raub, Philip Evanoff, J. R. Pekora of Dill & Collins Inc., Philadelphia; N. C. Cooper, Du Pont Company, Wilmington, Del.; E. S. Hinman, Penn Fibreboard Corporation, York, Pa.; F. R. Newton, A. M. Collins Manufacturing Company, Philadelphia; J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; R. W. Shaffer, Mac Andrews & Forbes Company, Camden, N. J.; J. C. Dieffenderfer, Paper Makers Chemical Corporation, Easton, Pa.; C. M. Connor, Valley Forge Laboratories, Conshohocken, Pa.; G. B. Martin, General Dyestuff Corporation, Philadelphia; Leslie Justice, Container Corporation of America, Manayunk, Pa.; H. H. Street, National Vulcanized Fibre Company, Wilmington; H. L. Becher, Agasote Millboard Company, Trenton, N. J.; William C. Jay, Sanitary Products Corporation, Philadelphia; C. A. Shubert, F. E. Macy, of Dill & Collins Inc., Philadelphia; J. E. Conway, Heller & Merz, Philadelphia; M. H. Boyce, Du Pont Company, Wilmington; L. F. Derr, Philadelphia; Jacob Edge, Downingtown Manufacturing Company, Downingtown, Pa.; A. W. Wickham, MacAndrews & Forbes Company; C. E. Peterson, Riegelsville, N. J.; E. A. Holland, Eugene A. Holland, Philadelphia; E. N. Glauner, A. J. Brookover Jr. of Downingtown Manufacturing Company; S. D. Reynolds, Container Corporation of America; O. C. Cordes, Downingtown Manufacturing Company; F. J. McAndrews, McDowell Paper Mills, Manayunk; J. Purcell, same company; R. H. Underdown,

American Dyewood Company, Philadelphia; B. R. Neice, New York Color and Chemical Company, Belleville, N. J.; E. J. Albert, Thwing Instrument Company, Philadelphia; Thomas McKnight, Hercules Powder Company, Wilmington; M. Craig Maxwell, McDowell Paper Mills, Manayunk; V. Jacobsen, National Aniline and Chemical Company, Philadelphia; O. L. Coward, General Electric Company, Philadelphia; R. M. Bates, Thomas M. Royal & Company, Philadelphia; B. M. Thomas, Container Corporation of America, Philadelphia; Adolf Schnabel, Mazer Paper Company, Lansdowne, Pa.; E. A. Walther, Asten-Hill Manufacturing Company, Philadelphia; A. M. Lund, Mazer Paper Company; John Roslund, Moore & White Company, Philadelphia; Fred Streicher, Dill & Collins Inc., Philadelphia; C. W. Rivise, Philadelphia; A. M. Cooper, Westinghouse Electric and Manufacturing Company, Philadelphia; G. E. Landt, Continental Diamond Fibre Company, Bridgeport, Pa.; R. G. Macdonald, Secretary of TAPPI, New York; H. C. Schwalbe, Dill & Collins Inc.; Paul Dieterle, Richmond, Staten Island, N. Y.; H. P. Cannon, Container Corporation of America; J. E. Plumstead, Jessup & Moore Paper Company, Elkton, Maryland; G. H. Detwiler, Heller and Merz, Philadelphia; H. H. Hanson, W. C. Hamilton & Company, Miquon, Pennsylvania; F. W. Brainerd, Scott Paper Company, Chester, Pennsylvania; Ray Heil, Norristown, Pennsylvania; W. M. Lee, Thomas M. Royal Company, Philadelphia.

New England TAPPI Hears Ritter

George J. Ritter of the Forest Products Laboratory, Madison, Wisconsin, was the principal speaker at the meeting of the New England Section of the Technical Association of the Pulp and Paper Industry held at the Worcester, Massachusetts Country Club, Friday evening, April 26, 1935. Frederic C. Clark of Skinner & Sherman Inc., presided as chairman.

Dr. Ritter talked on "Some Wood Properties that are Utilized in the Manufacture of Pulp and Paper." This lecture was illustrated by a number of lantern slides. He spoke of the distribution of lignin in the fibers and explained in detail the microstructure of the cell wall.

The cementing material between the layers and the fibrils of the cell walls was described. The fibers, due to their structure and properties absorb swelling agents, such as sulphuric, phosphoric and hydrochloric acids. Some of the illustrations showed the fibers treated with the swelling agents, in which the fibrils and fusiform bodies could easily be distinguished.

In the work Dr. Ritter has not found evidence of the correctness of Ludke's theory of cell structure.

Those Who Attended

Among those present were:

Fred Lovenberg, Mathieson Alkali Company, Providence, R. I.; H. S. Leonard, Merrimac Chemical Company, Boston, Mass.; Helen U. Kiely, American Writing Paper Company, Holyoke, Mass.; R. H. Doughty, Fitchburg Paper Company, Fitchburg, Mass.; R. C. Charron, U. S. Envelope Company, Worcester, Mass.; William J. Burke, American Writing Paper Company, Holyoke, Mass.; F. C. Clark, Skinner-Sherman, Inc., Boston, Mass.; G. A. Peterson, Rice, Barton & Fales, Worcester, Mass.; Roger C. Griffin, A. D. Little, Inc., Cambridge, Mass.; John W. Kirn, Rice, Barton & Fales, Worcester, Mass.; Frank R. Filz, Wheelwright Paper Co., Leominster, Mass.; Charles S. Adams, Rice, Barton & Fales, Worcester, Mass.; Dr. George J. Ritter, Forest Products Laboratory, Madison, Wisconsin; Jack F. Wright, National Aniline and Chemical Company, Boston, Mass.; Rolfe C. Bradbury, Fitchburg Paper Company, Fitchburg, Mass.; D. D. Uong, Fitchburg Paper Co., Fitchburg, Mass.; Gustav E. Mangsen, Fitchburg Paper Company, Fitchburg, Mass.; Herbert L. O'Neil, Falulah Paper Company, Fitchburg, Mass.; L. K. Burnett, Gair Thames Containers, Inc., New London, Conn.; Chester Landes, Fitchburg Paper Company, Fitchburg, Mass.; Arthur J. Cardinal, Falulah Paper Company, Fitchburg, Mass.; M. J. Sullivan, Falulah Paper Company, Fitchburg, Mass.; John J. Healy, Jr., Merrimac Chemical Company, Boston, Mass.; K. Ivar Ekholm, National Aniline and Chemical Company, New York City; Ralph J. Dalton, George O. Jenkins Company, Bridgewater, Mass.; Sanford E. Thompson, The Thompson & Lichtner Company, Boston, Mass.; H. W. Richter, George O. Jenkins Company, Bridgewater, Mass.; M. J. Baker, Franklin Paper Company, Holyoke, Mass.; J. Edward Doyle, American Writing Paper Company, Holyoke, Mass.; R. H. Kimball, George O. Jenkins Company, Bridgewater, Mass.; F. A. Abbiati, Merrimac Chemical Company, Boston, Mass.; W. L. Foote, B. F. Perkins Company, Holyoke, Mass.; C. C. Irving, S. D. Warren, Cumberland Mills, Me.; W. P. Richardson, A. D. Little, Inc., Cambridge, Mass.; P. S. Bolton, Clinton Sales Company, Boston, Mass.; W. A. Nivling, The Huron Milling Company, Boston, Mass.; Avery H. Stanton, Mason-Neilan Regulator Company, Boston, Mass.; Howard P. Likberg, Rice, Barton & Fales, Worcester, Mass.; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.; B. S. Dayton, Rice, Barton & Fales, Worcester, Mass.; H. E. Crippen, Solvay Sales Corporation, Boston, Mass.; A. W. Myhrvold, Rice, Barton & Fales, Worcester, Mass.; R. W. Pattison, American Writing Paper Company, Holyoke, Mass.; A. F. Brunell, Papermakers Chemical Company, Holyoke, Mass.; Arthur B. Green, Needham, Mass.; Sylvester Boyer, Needham, Mass.; L. A. Thompson, Papermakers Chemical Company, Holyoke, Mass.; W. Gordon Booth, Gair Thames Containers, Inc., New London, Conn.; W. D. Stroud, F. C. Huyck & Company, Albany, N. Y.; D. H. Brigham, U. S. Envelope Company, Worcester, Mass.

T. M. Avery Gets Patent

HUDSON FALLS, N. Y., April 29, 1935—True M. Avery, superintendent of the Union Bag and Paper Corporation, has been granted a patent on a registration compensating means for which application was filed in 1930. He was allowed a claim for new ideas in connection with the invention. The invention is described as follows: "In means for maintaining registration between a traveling web having longitudinally speed areas of relatively different light reflecting powers on a surface thereof and an element of a machine acting on said web, means for guiding the traveling web, a photo-electric cell and a light projector mounted opposite to said surface of the web in angular relation therewith to cause a light beam to be projected onto said surface of the web and reflected by said surface to the photo-electric cell, and a slide adjustably supporting the photo-electric cell and light projector in variable angular relations and movable to bring them bodily into cooperation with different portions of the width of the web." Patent rights have been assigned to the Union Bag and Paper Corporation.

STATES NEW NRA POLICY ON OPEN PRICE FILING

(Continued from page 15)

plane of competition in the field of wages and working conditions," and "to regulate the plane of competition in the field of trade practices." ("Government must see to it that trade practices are freed from abuse and are made proper instruments of business and public policy.")

Should Be Stated in General Terms

"A price policy," the Board's statement continues, "should of necessity be stated in general terms. Its end is to cause price to perform its essential functions. * * * It should not be perverted by such influences as ignorance, malice, deception, or collusion. Such barriers to the effective operation of competition must be removed; the forces which tend to destroy standards and to create unfair methods must be controlled; and trade practices must be harnessed to the industrial and social ends they should serve."

Citing differences between industries, the Board points out that "identical treatment" cannot be accorded all. "But whatever the necessity for variation in detail, the general objectives of price policy are definite. It must promote fairness between the parties to an industry and make its contribution to the betterment of the standard of living. A control of production is inevitable under any industrial system. A long experience has led us to leave that problem to the open market. * * * The strategy of policy must find expression in a multitude of decisions. But its end is single—an economy, not of scarcity but of plenty."

"Means should be flexible," the introduction concludes, "requiring the use of a miscellany of devices and procedures. Objectives should be stable. The goal sought is the establishment of conditions under which in a free and open market competition may determine a fair price."

Open Price Filing a Mere Device

Open price filing is a mere device, the Board says in announcing the first new policy to be promulgated. "Its potentialities for benefit or mischief depend upon the purpose to which it is put and the methods which attend its use. The standard by which its promotion should be judged is price making similar to that which would be afforded by an open and competitive market such as an organized commodity exchange." While it is recognized that the ideal of an open and competitive market can seldom be fully attained, the Board's policy announcement states that "it is possible for the open file to allow buyers and sellers to accommodate their activities to competitive conditions to fix limits to the spread of quotations at any given time, and to tend to make price perform its industrial function."

The essential characteristics of an open price provision of a code in conformity with the newly announced policy are that the prices be genuinely available to all customers and members of the industry, and that the prices filed are actual sales prices.

Should Serve Ends of Free and Open Market

"Price filing should be administered to serve the ends of a free and open market. An impartial and confidential body should be the administrative agency in order that price-lists may be distributed to members of the industry and their customers without partiality and without efforts to influence the quotations. The prices must be genuinely available to all customers and members of the industry. If the body with which prices are filed is a private agency, its activities must be subject to the immediate oversight of the government. It is also essential to the purposes of open price filing that the filed prices be those at which sales are actually to take place rather than merely minima above which members of an industry may secretly vary their prices as they choose of maxima from which discounts are to be allowed."

Waiting periods before filed prices may become effective have been found inadvisable as a general rule, the Board declares, and "the burden of proof is upon the industry which wishes to employ it." The Board's announcement differentiates between a waiting period before a filed price may become effective and a requirement that a price, once filed, must remain in effect a stated minimum period. The latter, the Board declared may be necessary "in rare cases to impose some limit upon the frequency of price change."

Cannot Be Indiscriminately Applied

Open price filing cannot be "indiscriminately applied to the entire range of American industry," the Board's announcement continues. In certain industries there are great technical difficulties, in others the benefits to be derived are so meager that the trouble involved would not be warranted; in still other cases open price systems "involve such probabilities of serious abuse that they should be avoided." The policy announcement declares that "the field for open pricing is that in which competition tends to be active but ill-informed and chaotic; not that in which competition tends to evolve into monopolistic restraint."

As an alternative to open price filing, the announcement states that price reporting—filing data on sales in the past, rather than current quotations—may serve the public policy adequately in some industries.

Distinction Between Price Filing and Price Fixing

The Board draws a sharp distinction between price filing and price fixing. "Competition is supposed to effect uniformity of prices through an open market; and an approximation of uniformity is almost certain to result from the proper maintenance of open price filing. It is when the prices quoted by members of an industry move in concert faster than competitors can easily accommodate themselves to each other's activities or when prices move uniformly upward in contrast to trends in related industries that evidence of collusion is present."

Flexibility Stressed

Flexibility in the application of open price filing policy is stressed in the Board's announcement. Only the general principles of the policy are given; application to individual industries depends largely on conditions within these industries and even, in some instances, on conditions in correlative industries.

Not Going Into the Paper Business

There have been many rumors recently that E. I. du Pont de Nemours & Co., Inc., are going into the paper making business. These rumors apparently have originated because of the published statements that Alfred E. du Pont and associates of Jacksonville, Fla., have purchased a large tract of timberland in Florida and are interested in paper making. The PAPER TRADE JOURNAL, however, has learned from an authoritative source that E. I. du Pont de Nemours & Co., Inc., are in no way interested in the Alfred E. du Pont enterprises or in the making of paper and pulp.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry announce that the following have been elected members of the Association:

Weyman S. Crocker, chemist, Crocker Burbank and Company, Fitchburg, Mass., is a 1918 graduate of Harvard University.

Louis B. Newman, chief engineer, Phil-Fibre Box Board Mills, Inc., Philadelphia, attended Drexel Institute.

Harry W. Schwartz, manufacturing superintendent, Robertson Paper Box Company, Inc., Montville, Conn., is a 1922 graduate of Harvard University.

John E. Black, chief inspector and sales service representative, The Mead Corporation, Kingsport, Tenn., is a 1921 graduate of Staunton Military Academy.

Robert W. Ball, chemist, Krebs Pigment and Color Corporation, Newport, Del., is a graduate of the University of British Columbia and received his Ph.D. from the University of Illinois and was formerly a chemist of the Du Pont Experimental Station, Wilmington, Del.

Harold P. Bailey, mill manager, International Paper Company, Niagara Falls, N. Y., is a 1915 graduate of the University of Maine.

Fred S. Van Voorhis, supervising engineer, Diamond Mills Paper Company, Saugerties, N. Y., is a 1912 graduate of Ohio State University.

James H. Kimberly, special development work, Kimberly-Clark Corporation, Niagara Falls, N. Y., is a 1931 graduate of the Massachusetts Institute of Technology and was formerly with the Spruce Falls Pulp and Paper Company, Kapuskasing, Ont.

James W. Coates, manager, American Can Company, Constantine, Mich., with whom he has been associated for the past 23 years.

Ralph G. Johnstone, Assistant to Production Manager, E. B. Eddy Company, Ltd., Hull, P. Q., is a 1924 graduate of Nova Scotia Technical College. He was formerly an electrical engineer for the Newfoundland Pulp and Paper Company, Cornerbrook, Nfld., and the Harland Engineering Company, Montreal.

John D. Davis, chemical engineer—Technical Service, Mead Corporation, Kingsport, Tenn., is a 1929 graduate of Purdue University.

Andrew W. Foley, superintendent, Hummel-Ross Fibre Corporation, Hopewell, Va. Mr. Foley was formerly with the Hartje Paper Company, Steubenville, Ohio, United Paper Company, Lockport, N. Y., and Nixon-Costello Company, White Hall, Md.

A. G. Colville Aikman, research chemist, Wiggins, Teape & Company, Ltd., Glory Paper Mills, Wooburn Green, High Wycombe, Bucks, England, is a 1922 graduate of the University of St. Andrews and was formerly with the Guard Bridge Paper Company, Ltd., Guard Bridge, Fife, Scotland.

Wilfred R. Payne, chemist, G. S. Eldridge and Company, Ltd., Vancouver, B. C., is a 1921 graduate of the University of British Columbia, and has been with the British Columbia Pulp and Paper Company, Woodfiber, B. C.

Harold D. Stuck, superintendent, John W. Bolton & Sons, Inc., Lawrence, Mass., with whom he has been associated for the past 22 years.

Oscar Dixon, director, Peter Dixon & Son, Ltd., West Marsh Paper Mills, Grimsby, Lincs., England, is a 1904 graduate of Cambridge.

Peter H. Bell, paper maker, Bowaters Mersey Paper Mills, Ellesmere Port, Cheshire, England, is a 1930 graduate of Marlborough College.

Bjorn Sucksdorff, assistant to the manager, Kymmene Paper Mills, Kymmene A/B, Tammerfors, Finland, is a 1929 graduate of the Technical University of Finland and was formerly with the Star Paper Mills Company, Ltd., Barnsley, England.

Joseph L. Kubicka, chemist, Container Corporation of America, Chicago, is a 1933 graduate of Armour Institute of Technology and was formerly with the Victor Manufacturing and Gasket Company, Chicago.

Robert G. Quinn, chemical engineer, International Paper Company, Glens Falls, N. Y., is a 1923 graduate of Notre Dame and was formerly with the National Sulphur Company, New York, American Cyanamid Company, New York, and the General Electric Company, Harrison, N. J.

Furio A. Abbiati, technical service engineer, Merrimac Chemical Company, Everett, Mass., is a 1927 graduate of the University of New Hampshire.

Robert McColl Young, Scott Paper Company student at the University of Maine, is a 1931 graduate of the University of Michigan.

Harold W. Knight, sales, Bulkley Dunton & Company, and American Bewoid Company, New York, was formerly superintendent of Louis Dejonge Company, Fitchburg, Mass., Nashua Gummed and Coated Paper Company, Nashua, N. H., King Paper Company, Kalamazoo, Mich., and the Whitmore Manufacturing Company, Holyoke.

Lorne C. Anderson, manager of manufacturing, Ontario Paper Company, Ltd., Thorold, Ont., is a 1923 graduate of Queens University and was formerly with the St. Lawrence Pulp and Paper Company, Three Rivers, P. Q.

John R. Cryan, service engineer, Fraser Paper Ltd., Madawaska, Me.

Louis T. Stevenson, Paper Manufacturer's Agent, 17 East 42nd street, New York, is a 1906 graduate of Yale University and was formerly president of the Rollstone Paper Company, Fitchburg, Mass., and the Mountain Mill Paper Company, East Lee, Mass.

John H. Park, student, Queens University, Kingston, Ont.

Malcolm B. Hall, division sales manager, The Foxboro Company, Foxboro, Mass., attended the Massachusetts Institute of Technology and was formerly with the American Pneumatic Service Company, and the Lamson Company.

Allan D. Wooley, assistant technical director, Oxford Paper Company, Rumford, Maine, is a graduate and Ph.D. of the University of Michigan and was formerly instructor in chemistry and physics at the Central State Teachers College, Mt. Pleasant, Mich.

Harry M. Keating, assistant manager, Smith Paper Company, Lee, Mass., is a 1912 graduate of Bowdoin College and of the Massachusetts Institute of Technology, and was formerly superintendent of the Strathmore Paper Company, Mittineague, Mass., and assistant to production manager of the American Writing Paper Company, Holyoke, Mass.

Richard N. Hammond, technical statistician, Pulp Division, Weyerhaeuser Timber Company, Longview, Wash., attended the University of Washington and was formerly Technical Assistant of the Northwest Experiment Station of the U. S. Forest Service, Portland, Oregon.

John Henderson Rich, mechanical superintendent, Foster Paper Company, Utica, N. Y., is a 1932 graduate of Syracuse, N. Y., and was formerly chemist for the Brownville Board Company, Brownville, N. Y.

Altus M. Ream, chemical engineer, Oxford Paper Company, Rumford, Maine, is a 1933 graduate of the Armour Institute of Technology.

Everett P. Ingalls, S. D. Warren Company, Cumberland Mills, Maine, is a 1915 graduate of the University of

Maine and has been associated with the Berlin, N. H., W. Enfield, Maine, Niagara Falls, N. Y., Piercefield, N. Y., and Livermore Falls and the Palmer, N. Y., mills of the International Paper Company.

Floyd M. Thorman, Quality Supervisor, United States Gypsum Company, Oakfield, N. Y., attended Armour Institute of Technology and has been associated with the Blue Rapids, Kansas, Chicago, New Brighton, S. I., mills of the Company since 1919.

Douglas Robbins, manufacturers' agent, J. Andersen and Company, Michigan Alkali Company, and the Warner Chemical Company, Middletown, Ohio, is a 1909 graduate of the Sheffield Scientific School, Yale University.

William L. Foote, sales manager, Mullen Tester Division, B. F. Perkins & Sons, Inc., Holyoke, Mass., was formerly with the Deane Steam Pump Company, Holyoke, and the Montague Machine Company, Turners Falls, Mass.

Merritt J. Davis, secretary, Hammond Bag and Paper Company, Wellsburg, W. Va., is a 1914 graduate of Cornell University and was formerly chemist for the Taggart Bros. Company, Watertown, N. Y.

Frank J. Lang, chief chemist, Tonawanda Paper Company, North Tonawanda, N. Y., was formerly with the Waterous Engine Works Co., Belgo-Canadian Paper Co., Abitibi Paper Co., Beaver Board Co., and the Ontario Paper Co.

A. A. MacDiarmid, chief engineer, Price Bros., Ltd., Quebec, P. Q., is a graduate of McGill University and was formerly with the Bathurst Lumber Company Pulp Division, Mattagami Pulp and Paper Company, Ltd., and the Montreal Light, Heat and Power Company.

George H. Harvey, production manager, Gardner-Richardson Company, Middletown, Ohio.

N. William Coster, technical director, Soundview Pulp Company, Everett, Wash., is a 1919 graduate of the Chalmers Institute of Technology and was formerly chemist for Oskarstrom A/B, Oskarstrom, Sweden, and the Puget Sound Pulp and Timber Company, Anacortes, Wash.

Hilliard D. Cook, superintendent, Sweet Bros. Paper Company, Phoenix, N. Y., is a 1921 graduate of the Massachusetts Institute of Technology and was formerly Research Chemist, S. D. Warner Company, Cumberland Mills, Maine.

Frederick W. Farrell, secretary and technical director, McLaurin-Jones Company, Brookfield, Mass., is a 1904 graduate of the Massachusetts Institute of Technology and was formerly chemist in the Emerson Laboratory, Springfield, Mass., and the U. S. Department of Agriculture.

Graham P. Prather, engineer, Dilts Machine Works, Fulton, N. Y., is a graduate of the State Ranger School, New York State College of Forestry and was formerly with the St. Regis Paper Company, Watertown, N. Y., Wiener Refiner Company, Oswego, N. Y., and the Berst Forster Dixfield Company, Cloquet, Minn.

Charles M. Howell, engineering manager, Scott Paper Company, Chester, Pa., is a 1919 graduate of Swarthmore and the University of Maine.

Harry J. Rowley, Anglo Canadian Pulp and Paper Mills, Ltd., Quebec, P. Q., is a graduate and Ph.D. of Queens University and was formerly with Arthur D. Little, Inc., and the Abitibi Pulp and Paper Company.

Paul S. Billington, junior chemist, Forest Products Laboratory, Madison, Wis., a 1926 graduate of the University of Oregon, has been advanced to active membership in the Technical Association.

V. J. Mill Buys Lawrence Pump Co.

Victor J. Mill of Baldwinsville, N. Y., has purchased the Lawrence Machine and Pump Company of Lawrence, Mass., and will continue to operate it under the name of the Lawrence Machine and Pump Corporation. This company, which was established in 1882, made the first centrifugal pump in the United States, was for many years a leader in its field and, at its peak, shipped between 1000 and 1500 pumps annually to all parts of the world.

Mr. Mill, who has been prominent in the industry for nearly 20 years, plans to continue the "Lawrence" line of pumps with many new improvements in design. The line will include centrifugal pumps, for a broad and varied field, notably single and multi-stage water pumps, stock pumps, sewerage and sludge pumps, slurry pumps, chemical pumps and sand and dredging pumps.

In addition the plant will build hydraulic dredges and special machinery, a field in which Mr. Mill has had a wide experience. The plant is particularly well equipped for this latter type of work.

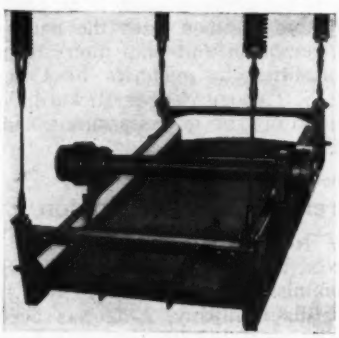
Mr. Mill is a graduate of the Sheffield Scientific School of Yale University. His practical experience covers a four-year shop training course with the General Electric Company at Schenectady, N. Y., two years as field engineer on hydraulic construction with Jas. Stewart & Co., a year as field engineer on general construction with the Standard Oil Company of New Jersey, and nineteen years with the Morris Machine Works of Baldwinsville, N. Y., the last eight years of which he served in charge of engineering and sales and as a director. The new proprietor of the Lawrence Machine and Pump Company has had extensive experience in the design, testing, installation and sale of pumping machinery and hydraulic dredging plants of all kinds in this country, Canada, Mexico, Central America and Europe.

Mr. Mill is a well known writer on subjects pertaining to pumps and hydraulic dredges. His articles have appeared in various trade publications. He holds three United States patents covering improvements in centrifugal pumps. His affiliations include the American Society of Civil Engineers, The Technology Club of Syracuse and others.

Mr. Mill served as a lieutenant of engineers in France, being among the first soldiers sent overseas.

Single-Deck Vibrating Screens

A new, exceptionally sturdy, low-priced Single-Deck Screen of the popular "Aero-Vibe" design is announced



by Allis-Chalmers Manufacturing Company, Milwaukee, Wis., in all sizes from 1½ x 3 to 5 x 10 feet. These screens "float in the air" suspended by cables and springs, vibrated by adjustable counter-weighted wheels. They will handle wood chips and many other materials.

E. A. Charlton Leaving International

It is rumored that E. A. Charlton, vice-president and manager of the Manufacturing Department, is leaving the International Paper Company. Mr. Charlton's plans for the future are not known.

K. Olle Haeger in New York

K. Olle Haeger, managing director, Lilla Edets Paper Mill, Lilla Edet, Sweden, has been in this country since April 23 and will return on May 11. He is here on business in the interests of his firm.

Soap, Felts and Slime

Dr. R. W. Mitchell, technical director of the Magnus Chemical Company, will read a paper on "Soap, Felts and Slime" at the Board Group meeting which will be a part of the Sixteenth Annual Convention of the American Pulp and Paper Mill Superintendents Association, June 5, 6 and 7, at the John Marshall Hotel, Richmond, Va.

Whitaker Stocks Caslon in Harrisburg

The Whitaker Paper Company of Baltimore, Md., announces that it has placed a stock of Caslon Bond and Caslon Mimeograph Bond in Harrisburg, Pa., for the convenience of its customers.

The Whitaker Paper Company Caslon sales during the past year have increased far in excess of expectations, which is the reason for this new warehouse.

Robert Gair Co. Makes Good Report

The Robert Gair Company and subsidiaries report for the quarter ended March 31, 1935: Profit after depreciation, sudsidiary bond interest and dividends on preferred stock of subsidiary company, but before interest on income notes and income taxes, $281,451. Provision for interest on income notes and income taxes, it is stated, amounts to approximately $78,000. This is the first quarterly report published by the company.

Outlines Newsprint Emergency

WASHINGTON, D. C., May 1, 1935—Fred Murphy, Minneapolis newspaper publisher, on Monday night, held a dinner here at the Willard Hotel in an effort to acquaint Senators and Congressmen with the emergency that is faced by the newsprint and pulp interests of the United States. In addition to members of Congress, A. R. Graustein, R. S. Kellogg, Edgar Rickard, W. J. Brown, NRA Administrator, and others prominent in the industry were present.

St. Lawrence Mills Off Boston Exchange

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1935—The Securities and Exchange Commission has announced that the St. Lawrence Paper Mills Company, Ltd., has been allowed to withdraw its listing of 142,500 shares of 6 per cent cumulative preferred stock, $100 par value, from the Boston Stock Exchange. Few shares were traded on the exchange in 1930, and none since. The shares are listed on the Montreal and Toronto stock exchanges, where all trading is effected.

Interstate Commerce Decisions

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1935—The Interstate Commerce Commission has granted authority, on conditions, to establish and maintain rates on newsprint paper and related articles, in carloads, from certain Canadian producing points to Kansas City, Mo., and points taking the same rates without observing the long and short haul provision of section 4 of the Interstate Commerce Act.

In another decision the Commission has modified a former decision for relief from the long and short haul provision of section 4 of the same Act, in rates on newsprint paper, in carloads, from Jonquiere, Quebec, Canada, to Philadelphia, to include certain additional routes.

Paper Men Die

John W. Krueger, long and widely known in the paper industry, especially in the coated paper division, died early Thursday morning, April 25, at his home in Orange, N. J. of a complication of diseases, aged about 80 years. Mr. Krueger for a long number of years represented the Champion Coated Paper Company in New York City, but resigned in 1914 since which time he has been devoting his attention to perfecting processes for the coating of paper.

Edmund Hyatt Garrison, president of the John W. Higman Company, importers of pottery and paper manufacturing materials, 24 State street, New York, and former secretary and treasurer of the Sixth Avenue Railroad Company in New York City, died late Friday night, April 26, at his home in Yonkers, N. Y. He was 84 years old. Mr. Garrison, who retired from the Sixth Avenue Railroad eight years ago, joined the company in the days of the horse cars, soon after he was graduated from Columbia University School of Mines in 1876. He was born in Yonkers, a son of Hyatt Garrison and Sophie French Garrison, descendants of a Colonial settler.

Traffic Men Visit Champion Coated Plant

[FROM OUR REGULAR CORRESPONDENT]

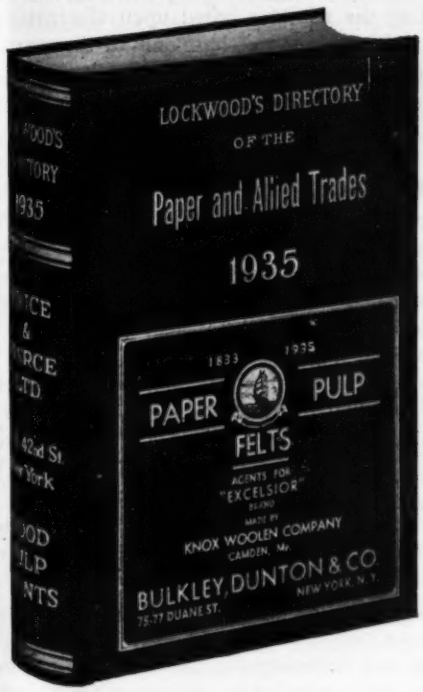
DAYTON, Ohio, April 29, 1935—The Miami Valley Traffic Club held an unusually interesting meeting last Thursday night at the Anthony Wayne hotel in Hamilton. A large delegation was present from Cincinnati, representing the Cincinnati Traffic club and guests were in attendance from Middle West cities. Alexander Thomson, president of the Champion Coated Paper Company, Hamilton, was the guest speaker.

The meeting was presided over by W. P. Kromphardt, general agent of the Erie Railway Company, with offices in Dayton. He reported an attendance of 127, one of the largest gatherings of traffic men held in the valley for some time.

During the afternoon a delegation of 80 members of the Cincinnati Traffic Club and guests from Chicago, Detroit, Toledo, St. Louis, Cleveland, and Baltimore were guests of Mr. Thomson in the Champion mills where they were conducted on an inspection tour.

In his talk at the dinner meeting, Mr. Thomson spoke on the organization of the Champion and traced its history through its pioneer days to the present position it occupies as the largest coated paper mill in the world.

He related the necessity of development of industry and told of the danger of stagnation. At the same time he advised the railroads against becoming stagnant and urged them to keep up with the times by installing all of the latest forms of transportation, as far as possible.



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PAPER TRADE JOURNAL

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Subscribed to and sworn before me on this 26th day of April, 1935.

BEATRICE TROMMER, Notary.

Vol. C New York, May 2, 1935 No. 18

INDUSTRY READY TO ADVANCE

After a "careful analysis" of the business outlook in the United States, the National Association of Manufacturers has concluded that the nation is "closer to breaking the back of the depression than at any time since 1932." The conclusions of the association are based upon a recently completed study of the economic situation, and the report, it was stated, speaks the views of industrialists throughout the country.

There are billions of dollars, the association statement says, stored up in this country which, if unloosed, would "dwarf" the $4,000,000,000 work-relief program of the administration. If this vast wealth is to go into action, legislation which is not aimed directly at ending the depression or putting millions back to work should be postponed until the next session of Congress, the association asserts.

Included in this legislation which the association says should be shelved temporarily are the Wagner Labor Bill, unemployment insurance, the thirty-hour week and the Utility Holding Company Bill, all of them now pending in Congress.

"Surveys," the statement of the association reads, "indicate that close to $20,000,000,000 in expenditures, which would give employment to 4,000,000 men for two years, is pent up in the field of factory expansion, renovation and rehabilitation alone. The release of this flow of private capital by removing political uncertainties would dwarf the billions appropriated by Congress for relief and make unnecessary the expenditure of much of the taxpayers' money.

"Other billions of purchases, largely within the durable goods field, are dammed up in the hands of small consumers, awaiting the stimulus based upon elimination of those factors which caution purchase only of those articles of absolute immediate need.

"Virtually every business index studied points upward at this time. There is an undoubted spirit of optimism in the land. Recovery is within our grasp if we as a nation cooperate to prevent the disappointing curve downward which has followed each business rise of recent years. Next year a national election impends, with its traditional disturbing effects upon business, and if this year's opportunity to activate business and curtail unemployment is lost, experience dictates that conditions will be less favorable in 1936.

"What then are the needs of the situation? One, that industry and business contribute to the fullest extent toward re-employment both in their own establishments and in the purchase of those postponed items which will provide jobs in other plants; two, that Congress and the Federal Government cooperate to the fullest by eliminating uncertainties as to future legislation which forbid long-term commitments by industry.

"This means the laying aside temporarily of any legislation which is not aimed directly and positively at ending the depression, and restoring the millions of idle persons to work within private industry, and the adjournment of Congress as soon as possible.

"Consideration of legislation designed to meet future situations, but which would be a disturbing element during the coming year by compelling a halt while industry makes the necessary adjustments, should be shelved until the next Congress convenes only seven months hence.

"Into this classification would fall the unemployment insurance bill, plainly designed to meet contingencies of the future; the banking bill, the utility holding company bill, changes in the railroad laws which would add millions of dollars to freight charges and increase consumer costs.

"In addition, there is the continuing threat of monetary inflation, the thirty-hour week bill, the Wagner labor disputes bill, extension of the authority of the Secretary of Agriculture, and the Guffey coal bill, which if enacted would compel a waiting period for recovery while business adjusted itself to their provisions.

"A survey by the Metal and Allied Products Institute, based upon actual replies from manufacturing plants, shows $18,000,000,000 of machinery purchases withheld over the past five years, which would give employment to 4,000,000,000 men for two years. This does not take into consideration the current machinery needs of the next two years.

"The Committee for Economic Recovery estimates a delayed demand for durable goods of $49,275,000,000, which would keep this country near the industrial peak for ten years. Colonel Leonard Ayres, noted Cleveland economist, estimates $80,000,000,000 of waiting demand.

"Industry recognizes fully its responsibility to the unemployed, and no group is more sincere in its efforts to bring a speedy end to the depression. We therefore

urge at this time that Congress and the administration give every assistance toward eliminating uncertainties which act as obstructions to recovery, and that each individual manufacturer follow with full and complete support of a program which would muster the full force of American initiative against the walls of depression during the next few months.

"Our problems call for a broad understanding in every walk of life, that prosperity is dependent upon the recovery of all groups and that the stirring of antagonisms between groups can but delay the attaining of our common goal."

Settle Code Violations

Irving Slote, secretary of the New York and Metropolitan Trading Area Committee of the Paper Distributing Trade Code Authority, announces the conclusion of two additional cases involving complaints of violation of the labor and wage provisions of the Code. Details of these matters are as follows:

1. The firm involved sells wrapping paper and paper specialties and is located in Brooklyn. The field investigator's report in this matter confirmed the complaint of violation. At a hearing the company, in view of the facts indicated by our investigation, admitted the violations. Adjustment was thereupon entered into, resulting in the payment by the respondent of $596.44, which has now been distributed by NRA to the employees concerned.

2. The firm involved sells fine paper and fine paper products and is located in Manhattan. The investigation in this case likewise disclosed evidence of violation of the wage and labor provisions of the Code. At a hearing in this matter the company admitted violation in some respects.

A basis of adjustment was arrived at, resulting in the payment by the respondent of the sum of $569.24 and this amount has now been distributed by NRA to the employees concerned.

In both of the above instances the firm involved promptly evidenced their willingness to and did actually lend their assistance to the committee to bring these matters to a satisfactory conclusion, including the submission of their books and records, and in view of such fact and the fact that they signed assurances of future compliance, the committee, subject to the approval of the NRA, withholds publication of the names involved, conditioned of course upon their future continued compliance with the Code in all respects.

Solka Display Attracts Thousands

Thousands of visitors, including many prominent members of the paper industry, were attracted to the complete Solka display on the main floor at Stern Brothers, one of the leading New York stores last week. The many and widely varied products made from the basic substance, Solka, were ably demonstrated.

Solka is now used in 36 industries to improve a very wide variety of products, from smart style items to staple merchandise, including Shoes, Hats, Furniture, Baby Pads, Lamp Shades, Handbags, Belts, Molded Plastics, Dress Shields, Cooking Parchments, Luggage, Draperies, Facial Tissues and Towels.

As is well known, Solka is purified cellulose created by patented process by the Brown Company, of Portland, Maine.

Careful Maintenance Makes Good Impression

WASHINGTON, D. C., April 29, 1935—Keeping paper and pulp mills "up to the minute" is of great importance, in the opinion of Axel H. Oxholm, chief of the Forest Products Division of the Department of Commerce.

"On a recent visit to one of America's most modern pulp and paper mills," he says, "I was greatly impressed by the cleanliness and bright appearance of the mill. The grounds were free from debris and refuse. The buildings were well-kept and well-painted, and the mill architect had evidently made every effort to create pleasant working conditions for the mill hands. Naturally, such careful maintenance makes a good impression on visitors."

Mr. Oxholm recently made an extensive tour of Europe, and had an excellent opportunity to study European mills. In this connection, he says, "While some of our more progressive American operators have realized the importance of appearances, our European friends have, as a general rule, a keener appreciation of the advantages of making a good first impression.

"I firmly believe," says Mr. Oxholm, "that a judicious use of paint and natural daylight—instead of artificial light and dark walls—in our mills would have a beneficial effect on the efficiency of the workers."

Mr. Oxholm points out that "pulp and paper are commodities which require the greatest attention in every step of manufacture; the slightest carelessness may result in the loss of thousands of dollars. It is natural, therefore, that the conditions under which the employees work must have an important bearing on the manner in which they carry out their duties. A well kept plant also suggests a high grade product. In this respect an extensive use of paint will help."

TAPPI Standards Adopted

The Standards Committee of the Technical Association of the Pulp and Paper Industry has announced the result of the recent balloting as follows:

TAPPI Standard T 407 m—Amount of Coating in Mineral Coated Paper (Adopted)

T 434 m—Acid Soluble Iron in Paper (Adopted)

T 619 m—Analysis of Salt Cake (Adopted with slight modification)

T 620 m—Analysis of Water (To be continued as a Tentative Standard because of controversial details)

T 621 m—Analysis of Rosin (Adopted with slight modification)

A mailing of a large number of TAPPI Standards will soon be sent to all members in good standing who have TAPPI Manuals. Any member may obtain a binder and full set of standards on written request sent to R. G. Macdonald, Secretary of TAPPI, 122 E. 42nd street, New York.

D. M. Bare Paper Co. Announce New Office

The D. M. Bare Paper Company of Roaring Spring, Pa., manufacturers of super calendered, machine finish, antique, English finish, eggshell, lithograph, mimeograph, bond, envelope and white flats, well known as Roaring Spring Papers, announce the opening of their New York Sales Office on May 1. This new office, located at 415 Lexington avenue, is in charge of I. L. Gartland, general sales manager of the D. M. Bare Paper Company. He is well known in the paper industry and was formerly sales-manager for the Northwest Paper Company.

"Now there's an OPAQUE sheet"

Salesmen are encountering many comments such as this when offering new improved lines—more opaque, whiter and brighter papers that arouse enthusi among paper dealers, printers and consumers.

Because the desired degree of these qualities can be obtained by CRYPTO and ALBALITH Zinc Sulphide Pigments, which are available in a range of strength meet a variety of requirements, the use of these pigments is increasing.

The trade is looking for these qualities. . . . Our Technical Service Dep ment is ready to cooperate with you on any phase of this development.

New Jersey Zinc

THE NEW JERSEY ZINC COMPANY 160 FRONT STREET, NEW Y

ZINC SULPHIDE PIGMENTS IN PAP

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

New Uses for Monel Metal in Paper Industry

Following are some developments in the use of Monel Metal during 1934 that should be of interest to the pulp and paper industry.

JORDAN ENGINE FILLINGS:

During the year reference has been made in the literature to superior qualities of cold rolled Monel Metal for Jordan bars. Three manufacturers of jordans have entirely equipped some and partly filled other jordans for mills making a variety of papers such as high grade rag bond, sulphite bond, glassine, tissue and other specialty papers. Jordan bars of this metal have been in use for as long as ten years without requiring replacement. Monel Metal has the advantage of not building up a feather edge. It retains a smooth working edge which means that the entire working surface of the filling does its work of refining at full capacity and results in better rubbing action on the fiber and more thorough hydration than is ordinarily the case.

DOCTOR BLADES:

Tests indicate that Monel Metal doctor blades give the best results with chromium-plated rolls. Cold rolled strip is used.

SUCTION BOXES AND SAVE-ALL TRAYS:

Monel Metal has found further use in these items because of corrosion resistance combined with strength and rigidity. Welding facilitates light weight construction.

SODA PROCESS BLACK LIQUOR:

There has been further extenson of the use of both seamless and welded Monel Metal tubing in black liquor evaporators as a result of the excellent service records of Monel in this use.

CAUSTIC SODA EVAPORATOR TUBES:

Mills producing their own electrolytic chlorine have followed the lead of caustic producers and are using either pure nickel, seamless Monel Metal or welded Monel Metal tubes as a means of cutting maintenance costs in this department.

SIZE PREPARATION EQUIPMENT:

Both Monel Metal and Nickel-Clad Steel tanks are used, the latter being more economical construction for the larger tanks.

TABLE ROLLS:

Brass has been used more than any other metal for table rolls on fourdrinier machines, but, unfortunately, brass rolls are subject to the dezincification type of corrosion, and their lack of stiffness coupled with their low resistance to fatigue stresses has resulted in fatigue failures due to whipping of rolls that have sagged either under their own weight or the load being carried.

The principal advantages of Monel Metal for table rolls are as follows: The modulus of elasticity of Monel Metal is 26,000,000, that of brass only 14,000,000. This means that with rolls of the same diameter and wall thickness, a Monel Metal roll will sag under a load only about 54 per cent as much as a brass roll. This, of course, reduces the "whip" of the revolving rolls, reduces the tendency for fatigue stresses to be set up, and results in a smoother travel of the fourdrinier wire, which is of great importance in some plants. This characteristic of Monel Metal becomes more important as the width of the paper machine is increased, because of the longer, unsupported span of the table rolls.

The endurance fatigue limit of Monel rolls is from 35,000 to 50,000 psi, whereas that of brass is not more than 25,000 psi. Consequently, Monel rolls are from 1½ to 2 times better than brass from the standpoint of resistance to fatigue.

Alum containing paper stock solutions often lead to failure of brass rolls due to dezincification type of corrosion. Monel Metal is free from this type of corrosion.

Monel Metal is much more resistant than brass to corrosion by alkaline solutions met with in soda and Kraft mills.

Monel Metal rolls do not require expensive cleaning operations each time the fourdrinier wires are changed. Brass rolls may require as much as nine man hours just for cleaning each time a new wire is put on the machine.

K MONEL:

This is a new alloy made from Monel Metal by alloying small quantities of aluminum. It can be hardened by heat treatment to obtain the high strength and hardness of heat treated alloy steels, such as are used in airplane engine crankshafts. These high mechanical properties are combined in this new alloy with the corrosion resistance of Monel Metal, which is particularly good against the common corrosives, such as salt, brine, caustic soda and dilute sulphuric and hydrochloric acids. The alloy is furnished in the following forms: hot rolled and cold drawn rods, forgings, strip and wire.

S MONEL METAL CASTINGS:

Monel Metal castings with a higher silicon content and having excellent hardness properties are being obtained

without sacrifice of corrosion resistance. These castings are finding wide use in trim for steel valves and valve manufacturers are enthusiastic about the value of this new material in handling superheated steam. The greater abrasion resistance of the metal recommends it also for pump impellers handling the abrasive alkaline solutions found in many plants.

SCREEN PLATES:

It has long been known that Monel Metal, from the point of view of corrosion resistance and wearing qualities, is an excellent screen material. To economically slot it, however, was another thing. The development of free-machining quality Monel Metal sheet opens up large possibilities for such a material.

TAPPI Fall Meeting Papers

As the first step in formulating the program of the Fall Meeting of the Technical Association of the Pulp and Paper Industry, the Program Committee requests that all persons who are interested in presenting papers at the meeting in September at Atlantic City, notify the Secretary of TAPPI, 122 East 42nd Street, New York, not later than May 18th.

It is expected that all proposed papers will be in the hands of divisional chairmen by the first of July as the Committee is anxious to make adequate provisions for early publication of preprints. Exceptions will be made to this where authors have their material substantially in hand and can give a detailed abstract of the proposed paper, but have not had quite time enough to put it into literary form. However, the time can not be extended beyond July 1st for consideration of papers for more than a week or ten days.

The Fall Meeting of TAPPI will be held at Atlantic City, September 18 to 21 inclusive. The Program Committee consists of G. E. Landt, Continental-Diamond Fibre Company, Chairman; H. C. Schwalbe, Dill & Collins, Inc.; A. M. Lund, Mazer Paper Mills; J. d'A. Clark, Scott Paper Company; C. E. Peterson, Riegel Paper Corporation; and R. M. Cobb, Lowe Paper Company.

Container Corporation Joins TAPPI

The Container Corporation of America has become a corporate member of the Technical Association of the Pulp and Paper Industry.

The mills of this company are located at Chicago; Philadelphia; Cincinnati; Wabash, Indiana; Carthage, Ind.; Kokomo, Ind.; and Circleville, Ohio. Subsidiaries include the Mid-West Box Company, Sefton Container Corporation, Dixon Board Mills, Chicago Mill Paper Stock Company, and the Pioneer Paper Stock Company. Box factories are located at Chicago; Anderson, Ind.; Natick, Mass.; Cincinnati; and Philadelphia; 3,225,000 pounds of paperboard are manufactured daily.

Walter P. Paepcke is President and J. J. Brossard is Vice-President, and is the official representative of the Container Corporation in the Technical Association.

Paper Concerns Get R. F. C. Loans

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1935.—During the month of March the Reconstruction Finance Corporation made a loan of $300,000 at 6 per cent interest to the Liberty Paper Board Company of Bogota, N. J. During the same month also the corporation loaned $2,000 to the Mansfield Paper Box and Novelty Company, of Mansfield, Ohio.

TAPPI Fall Meeting Headquarters Selected

Following a meeting of the Entertainment Committee of the Fall Meeting Committee of the Technical Association of the Pulp and Paper Industry on April 28th at Atlantic City, N. J., the Ambassador Hotel of that famous convention town was chosen as headquarters.

The meeting is to be held on September 18 to 21, 1935, and because a record attendance is expected a large hotel was in order. The meeting facilities at the Ambassador are of outstanding merit and its location will contribute much to the success of the meeting.

The Committee was very fortunate in securing favorable rates in a hotel that is able to attract capacity crowds at relatively high normal rates. For the benefit of TAPPI members and others who may attend the meeting these rates for single rooms will be $3 to $5 and for double

Photo by Fred. Hess & Son

TAPPI COMMITTEE AT ATLANTIC CITY

Back row left to right: B. M. Thomas, E. J. Albert, J. C. Dieffenderfer, J. C. Harper, Jr., R. G. Macdonald, Frank Winslow, R. L. Kirby. Seated: W. M. Shoemaker, Mrs. H. P. Cannon and Harvey P. Cannon.

rooms they will range from $5 to $7, the higher priced rooms being those that will command an unobstructed ocean and beach view.

Reservations must be made directly with the Ambassador Hotel, Atlantic City, N. J., and since the best assignments will be made in the order received, it will be advantageous to reserve rooms as soon as possible. The number of rooms carrying the minimum rate is limited and there will probably be none available after June 1st. It is therefore advisable to send in reservations right away to avoid disappointment later.

Because of the location of the meeting place and the low rates the convention offers atractive advantages to those who may wish to attend during their vacations. By special arrangement these rates will apply for several days both before and after the meeting. The bathing facilities at the hotel are excellent. No rent will be charged for lockers and there is a large salt water swimming pool in the hotel for those who may not wish to use the beach.

Many members are planning to take their families along and for this reason an unusually fine program for the ladies is being developed by Mrs. H. P. Cannon and her enthusiastic co-workers. Mrs. Cannon recently visited the Ambassador and was very favorably impressed with the accommodations provided for bridge parties and other activities. It is doubtful if anyone can plan as complete a vacation as will be provided by TAPPI in September. Anyone interested may attend and early reservations are urged for those who wish to get the most benefit from the convention.

The Distribution of Sulphur During the Kraft Pulping Operation*[1]

By Otto Kress[2] and James W. McIntyre[3]

Abstract

In a study of the chemical conditions and distribution of sulphur during the kraft cook, two investigations have been carried out and are herewith reported. The first takes up the distribution of sulphur regardless of conditions at the end of the cook; this may be termed a sulphur balance in the cook. The second deals with a study of the methods used for the determination of sulphide in black liquor, and the variation of the sulphide in the liquor during the cook.

After Dahl in 1884 discovered that a material increase in strength of pulp produced resulted with the substitution of about one-third of the caustic in the soda process with sodium sulphide, the kraft or sulphate process for pulping wood grew rapidly until at present it has become one of the important processes of pulping. Since it is in the modification of the soda process by substitution of a portion of the cooking chemical, sodium hydroxide, with sodium sulphide that the kraft process acquires its character and, moreover, since variation of the sulphide-hydroxide ratio exerts such a marked influence on the character of the pulp produced, it is peculiar that there has been so little investigation into the chemistry of sulphur in the kraft cooking operation.

Preliminary Work on the General Subject

This investigation is concerned with preliminary work on the general subject of the chemical condition and distribution of sulphur during the kraft cook and may be divided into two major sections. The first phase of the work concerns the distribution of the sulphur, regardless of chemical condition, at the end of the cook and might more properly be termed a sulphur balance on the cooking operation. The second section of the investigation concerns the determination of the sulphur appearing as sulphide in the black liquor and the change of this sulphide content during the progress of the cook.

Equipment and Procedures

A. Equipment

The experimental cooks which were made in the course of this work were made either in plain steel rotary autoclaves of about 14 pounds air dry wood capacity or in stationary stainless steel autoclaves of about 625 grams air dry wood capacity. These autoclaves have been fully described by Davis *(1)*. Where the stationary autoclaves were used in the work with the sulphur balance, they were fitted with a system to be described later for collecting relief and blow-off vapors.

B. Analytical Procedures

1. Analysis of cooking liquor:

Determination of the sulphide and hydroxide in the cooking liquors were carried out by acid titration as described by Griffin *(2)*. Total sulphur in the white liquor was determined by oxidation with bromine water and subsequent precipitation as barium sulphate.

2. Total sulphur in black liquor:

The procedure used for the determination of the sulphur content of the black liquors was as follows:

A black liquor sample of about 2.5 grams is weighed directly into a nickel crucible of about 60-cc. capacity. If no metal cover is available, a small watch glass will serve. Sodium peroxide is added in small quantities to the liquor in the crucible. Occasional heating is necessary to promote the reaction. After the violent evolution of gases has subsided, the crucible and contents are heated to a dull red and maintained there for two or three minutes. The melt is cooled, dissolved in water, the solution made acid with HCl, and boiled. Any residue at this point is usually carbon and need not be removed before precipitating the sulphur with barium chloride. If the residue appears to be silica, the solution should be filtered before the sulphate is precipitated.

It is important to see that the sodium peroxide has completely reacted after each addition, since an accumulation of the reagent may result and cause a too violent reaction. Should spattering start at any time, the crucible should be covered until it has stopped.

C. General Cooking Procedures

1. Rotary autoclaves:

14 pounds of screened spruce chips, 93 per cent dry, and 15 liters of cooking liquor containing 26 grams of sodium sulphide and 52 grams of sodium hydroxide per liter were charged in the rotary autoclaves. These conditions correspond to 20 pounds of chemical and 30 gallons of cooking liquor per 100 pounds of bone dry wood. After screwing on the cover, the autoclaves were rotated and the burners lighted. A temperature increase period of 45 minutes was chosen to bring the digesters to the cooking temperature of 175.5 deg. C. At a temperature of 110 deg. C. in the coming up period, the gas pressure was relieved. The digesters were kept in rotation during the entire cooking period, which varied according to the exact experimental procedure. At the end of the cooking period the heat was removed, the autoclaves cooled with a stream of water, and the black liquor removed by draining from the inclined autoclave. All samples were stored in glass stoppered bottles. The time required for cooling from cooking temperature to 90 deg. C. was 15 minutes.

2. Stationary autoclaves:

The stationary autoclaves were charged with 625 grams of screened spruce chips, 93 per cent dry, and 3200 cc. of cooking liquor containing about 11 grams of sodium sulphide and 22 grams of sodium hydroxide per liter, equivalent to 20 pounds of chemical and 60 gallons of liquor

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 18 to 21, 1935.

1. Submitted by the junior author as a thesis in partial fulfillment of the requirements of The Institute of Paper Chemistry for the degree of Master of Science.
2. Member TAPPI, Technical Director, The Institute of Paper Chemistry, Appleton, Wis.
3. Graduate Student, The Institute of Paper Chemistry, Appleton Wis.

per 100 pounds of bone dry wood. The autoclaves were brought up to the cooking temperature of 175.5 deg. C. in 30 minutes and maintained there for three hours. When the temperature reached 110 deg. C., the gas pressure was relieved. At the end of the cooking period the digester was relieved through a system consisting of a water jacketed condenser, a receiver, and a trap, and the system after this trap was varied according to the desired experimental procedure. The receiver following the condenser collected the condensed vapor and entrained black liquor, while the non-condensable gases were forced through the remainder of the system. Thirty minutes were required to relieve and cool the autoclaves to atmospheric pressure and a temperature of 90 deg. C. The condenser was then disconnected from the relief line and air bubbled slowly through the system for 20 minutes to remove readily volatile gases from the condensate and to cleanse the system. The procedure from this point varied according to the particular cook made.

Experimental Work

A. The Sulphur Balance

Before attempting any examination into the nature of chemical condition of sulphur as it occurs during the kraft cooking operation it was deemed advisable to determine the distribution of the sulphur at the completion of the experimental cooks as carried out under the conditions used in the laboratory. With this in mind two series of studies were made; the first in the rotary autoclaves, and the second in the stationary autoclaves.

1. Sulphur balance on the rotary autoclaves:

Two cooks, Nos. 1 and 2, were made in the rotary autoclaves as described in *Cooking Procedures.* The total cooking time was three hours, with forty-five minutes of it devoted to a temperature increase period. At the end of the cooking period the autoclaves were cooled and the liquor removed as described. Weighed samples of the black liquor were analyzed and the analyses calculated to grams sulphur per liter after determination of the density of the black liquor by means of a pycnometer.

The following assumptions were made in making the calculations for the sulphur balance for these 2 cooks: (1) That the sulphur loss during the progress of the cook, i. e., relieving the gas pressure was negligible. (2) That the volume of the black liquor was the same as the volume of the liquor introduced plus the moisture introduced with the wood. (3) That the sulphur at the end of the cook was all in the black liquor.

On this basis the results given in Table I were obtained.

TABLE I
RESULTS OF SULPHUR BALANCE MADE ON THE ROTARY AUTOCLAVES

Cook No.	Gms. S/Liter		Vol. of Liquor		Gms. S Total		%
	Cook L.	Black L.	Cook	Black	Cook L.	Black L.	Loss
1	11.78 g.	9.21 g.	15.0 L.	15.4 L.	176.8	142.5	13.3
2	12.05 g.	9.99 g.	15.0 L.	15.4 L.	180.9	154.0	14.7

2. Sulphur balance on the stationary autoclave:

After consideration of the large sulphur loss in the work with rotary autoclaves, it was decided to work with the stationary autoclaves which were smaller, and which could be operated as closed systems with more facility than could the rotating autoclaves. As described under *Cooking Procedures,* the relief line on the autoclaves was fitted with a condenser and receiver. In an endeavor to trap the noncondensable gases containing sulphur, various absorbents were used. In the first series, traps containing various salt solutions were placed after the condensate receiver. In one run lead acetate followed by mercuric chloride was used, in another, cadmium sulphate followed by mercuric chloride, but in each case the odor of mercaptans was evident at the end of the train, indicating incomplete absorption of the sulphur-containing compounds, and consequently no attempts to complete the balance were made.

In the final series, three absorption towers about 8 inches tall and of 100-cc. capacity, were packed loosely with glass wool, filled partially with concentrated nitric acid, and introduced into the system after the condensate trap. The first two towers were heated to 90 deg. C. in a water bath. When the autoclaves were relieved through this system, no odors indicative of mercaptans issued at the end of the train.

In the first two cooks, Nos. 3 and 4, with this system, the sulphur absorbed in the towers was determined, the volume of condensate collected was noted and the sulphur content determined by sodium peroxide fusion, and a sample of the black liquor drained from the cooked chips was analysed for total sulphur. In making the sulphur balance on these two cooks the following assumptions were made: first, that the volume of black liquor remaining in the autoclave after relieving at the end of the cook was the volume of the cook liquor plus water introduced with the chips, less the volume of the condensates; second that the sulphur in the black liquor, in condensate and in the absorption towers, represented all of the sulphur. Results based on these assumptions are given in Tables II and III.

TABLE II
ANALYTICAL DATA FOR COOKS NO. 3 AND NO. 4

Cook No.	Volume Liquor cc.			Gms. Sulphur/Liter		
	Cook	Black	Condensate	Cook	Black	Condensate
3	3200	2459	785	5.27	5.78	2.479
4	3200	2642	602	5.84	6.15	2.485

TABLE III
INDIRECT SULPHUR BALANCE ON COOKS NO. 3 AND NO. 4

Cook No.	Cook L.	Black L.	Condensate	Towers	Accounted	Loss
	Gms. S Total				Gms. S.	%
3	16.877	14.21	1.946	0.01	16.16	4.20
4	18.709	16.24	1.476	0.07	17.786	4.94

From these results it was clearly evident that the concentration of sulphur in the black liquor was reduced by retention of chemical by the cooked chips, and that a balance could not be obtained until this had been taken into consideration.

With this in mind the following procedure was adopted in cook No. 5. After relieving the autoclave at the end of the cook, the condensate and towers were treated as before, but the volume and weight of the black liquor drained from the chips was noted. The cooked chips and absorbed black liquor were then removed from the digester and the mass disintegrated and washed by stirring in a beaker with distilled water. The wash liquors were removed by draining through a Büchner funnel fitted with a 100-mesh wire filter. The washing was continued until most of the black liquor was removed from the thoroughly disintegrated chips. The exact volume of the combined wash liquors was noted, and samples analyzed for the total sulphur by the sodium peroxide fusion method. The washed pulp was weighed and average samples taken for sulphur analyses. The determination was made by sodium peroxide fusion in a Pennock-Martin nickel crucible.

The balance in this case involved no assumptions but could be made directly from the data obtained. The results are given in Tables IV, V, and VI.

B. The Determination of the Sulphide Content of Black Liquor

Heath *(3)* has proposed a method for the determination of sulphide in black liquor involving the evolution of

TABLE IV
MATERIAL BALANCE COOK NO. 5

Charged			Withdrawn				
Cook Liquor		Wood	Condensate		Black Liquor		Unwashed Pulp gms.
cc.	gms.	gms.	cc.	gms.	cc.	gms.	
3200	3327	625	675	683	1480	1587	1545

Gms. Charged=3952 Gms. Withdrawn=3815
†Gms. Loss = 148 Percent Loss = 3.75
† This loss was probably due to evaporation while emptying the autoclave.

TABLE V
ANALYSES FOR SULPHUR COOK NO. 5

Cook Liquor		Black Liquor		Condensate		Washed Liquor			Washed Pulp*	
Gms.	S/L.	% Sulphur		Gms.	S/L.	Gms.		S/L.	%	S
5.95	5.93	0.587	0.584	2.07	2.09	.440	.447	.454	030	.033
Ave.	5.94	Ave.	0.5855	Ave.	2.08	Ave.		0.447	Ave.	0.0315

SULPHUR IN TOWERS

	Tower No.		
	1	2	3
Gms. S.....	0.00875	0.0002	0.0000

* Weight of washed pulp—1065 grams.

TABLE VI
SULPHUR BALANCE COOK NO. 5

Charged	Withdrawn				
Cook Liquor	Condensate	Wash Liquor	Black Liquor	Washed Pulp	Towers
19.01 gm.	1.405 gm.	7.83 g.	9.29 g.	0.336 g.	0.0088 g.
Total 19.01			Total 18.87 gm.		

Gms. Loss = 0.14 % Loss = 0.73

the sulphide from the sample of liquor by means of ammonium chloride. In a more extensive investigation *(4)*, he has modified this method so that the sulphide, hydroxide, and carbonate may be determined in the same sample in one operation. In the latter investigation he finds that the Forest Products Laboratory method in which the black liquor, after treatment with barium chloride, is titrated directly with iodine gives high and erratic results. Heath also finds that the titration of black liquor with ammoniacal zinc nitrate as proposed by Kress *(5)* is inconvenient to use, presumably due to difficulty in determining the exact end point in the titration.

Oeman *(6)* suggests the removal of organic sodium salts from the black liquor sample by precipitation with 95 per cent ethyl alcohol before titration of the sample with iodine. He believes that by this method the hydrolysis of loosely bound sulphur, present in organic compounds, is prevented and the results show only the sulphide which is present as sodium sulphide.

In this portion of the experimental work various methods which have been proposed for the determination of the sulphide content of black liquors were studied and modifications which improve their accuracy or facility of operation were introduced and examined.

The sulphide present in black liquor was evolved by means of ammonium chloride and absorbed in known amount of standardized iodine solution as described by Heath *(3)*. When this method was modified by substitution of neutral cadmium sulphate as receiver for the sulphide, the results were found to check closely the results obtained by evolving the sulphide with a mineral acid such as sulphuric or phosphoric where either iodine or cadmium sulphate was used as receiving solution.

The method of Kress, using the direct titration of the black liquor sample with standard ammoniacal zinc nitrate solution and ammoniacal nickel sulphate as outside indicator, was found to be impractical for exact work. However, a modification of this method was developed which gives reasonably good results when the liquor under test is fresh, preferably not over a week old. The modified procedure was as follows:

A weighed sample of about 25 grams of black liquor is treated in a 250-cc. graduated flask with 20 cc. of 20 per cent barium chloride solution, made up to volume and well mixed. The precipitate is removed by centrifuging and an aliquot of the clear solution used for the zinc titration. It is necessary to remove the material precipitated by barium chloride by centrifuging because in the time required for settling by gravity a lowering of the sulphide content is noted.

The most satisfactory method of making the end point determinations is to place a moderate sized drop of the ammoniacal nickel sulphate indicator on the unglazed side of a porcelain spot plate; then to the top of this drop touch a small drop of the solution under test. The drops should be allowed to mix naturally and should not be stirred together at any time. The end point is a change from brown to yellow. After standing a short time the tests made before reaching the end point become a darker brown, while those made after passing the end point become dark green. The end point is less distinct if the black liquor is much more than a week old, and check results are difficult to obtain.

Among the other methods of sulphide determination examined were the alcohol precipitation method of Oeman *(6)*; and the evolution of the sulphide by passing carbon dioxide through the liquor and absorbing the sulphide in alkaline cadmium sulphide. Both methods gave unsatisfactory results.

C. Change in the Sulphide Content of Black Liquor During the Progress of the Cook

The change in the sulphide content of the black liquor as the cooking operation progressed was studied qualitatively in the rotary autoclaves in two ways: first, by making individual cooks in which the cooking time was some predetermined fraction of the regular cooking period; and second, by withdrawing samples from one autoclave as it was put through the cooking cycle.

1. Individual cooks made for fractions of the total cooking period: The procedure outlined under *Cooking Procedure* was followed in charging and emptying the autoclaves. Cooking liquor was prepared by making up solutions of commercial sodium hydroxide and sodium sulphide separately, analyzing them and then combining in the proper proportions and diluting these to proper volume. The liquor was prepared the same way for each cook, the same quantity of screened spruce chips was used and the conditions in bringing up to temperature maintained as nearly constant as possible. Eight cooks were made in this series, progressing in cooking times from 30 minutes to 240 minutes.

In cook No. 6 of 30 minutes' duration the charge was not up to the cooking temperature since, as described under *Cooking Procedure*, 45 minutes were required for this phase of the cycle. The 15 minutes required for cooling were not considered as part of the cooking time. Analyses for sulphide were made on the untreated black liquor by the ammonium chloride distillation method using iodine in the receivers. The liquors were one week old when analyzed. The results are shown in Table VII.

2. Single cook with samples withdrawn at intervals: The results obtained by making individual cooks for various fractions of the total cooking period gave somewhat erratic results due, probably, to unavoidable variations such as time of temperature increase and exact composition of cooking liquor. Moreover, there seemed to be an undue amount of sulphide remaining in the black liquor at the end of the regular cooking cycle. With the intent of eliminating some of the variables involved, a cook was made and treated in the following manner. Samples of about 75 cc. of liquor were withdrawn through the relief valve at the specified intervals during the cooking cycle, by opening the valve slightly when it was at the bottom of the autoclave. All samples were placed immediately

in glass-stoppered bottles and cooled. Sulphide was determined 20 minutes after withdrawal from the autoclave by the modified zinc titration method as previously described.

TABLE VI
CHANGE OF SULPHIDE CONTENT OF BLACK LIQUOR WITH DURATION OF COOK

Cook Number	Duration of Cook	Grams Na_2S per liter
Cooking Liquor	.....	27.0
6	30 min.	19.5
7	60 "	16.5
8	90 "	21.8
9	120 "	15.2
10	150 "	13.5
11	180 "	13.2
12	210 "	13.7
13	240 "	13.8

This cook, 14, was made with 17 pounds of chemical per 100 pounds of oven-dry wood, as compared with 20 pounds of chemical used in the previous cooks. The sulphide hydroxide ratio of 1:2 was maintained. The change in the quantity of chemicals was made in order to see if the large quantity of sulphide remaining in the black liquor was the result of using excessive chemical in the cooking operation. Yield of acceptable pulp and of screenings was determined in order to ascertain whether the quantity of chemical in this case was sufficient. The results of this experiment are given in Table VIII.

TABLE VIII
COOK NO. 14: 17 LB. CHEMICAL PER 100 LB. DRY WOOD
Change of Sulphide Content of Black Liquor During the Progress of the Cook—Yield of Pulp and Screenings

Time in Minutes	Gm./L. Na_2S	Time in Minutes	Gm./L. Na_2S	Yield in % of Oven-dry Chips
Cooking Liquor	23.6	120	11.8	Screenings
30	16.2	150	11.8	11.0%
60	13.2	180	11.6	Pulp
90	11.8	180[b]	11.2	40.0%

[b] Sample taken by cooling rotary and draining.

Discussion of Results

A. The Sulphur Balance

This experimental work gives direct evidence as to the distribution of the sulphur as it exists at the end of the kraft cook. Loss of sulphur in the non-condensable gases escaping from the digester during the blowing is very small as will be seen from a consideration of the sulphur content of the absorption towers as tabulated in Tables III and V.

In the case of the cooks made in the stationary autoclaves about 4 per cent of the total sulphur was retained by the cooked chips themselves. This is evident upon noting the sulphur loss in cooks 3 and 4 Table III where the black liquor was assumed to contain all of the sulphur not in the condensate and absorption towers, as compared with the sulphur loss in cook No. 5 Table VI where positive analyses were used in balancing the system.

The quantity of chemical absorbed is, naturally, a factor of the concentration of the chemical in the liquor and the temperature at which it is drained from the chips.

B. Determination of the Sulphide Content of Black Liquor

Results of the examination of the methods for sulphide determination point to the fact that comparable results may be obtained for sulphide content of fresh black liquor when using acid evolution into iodine and ammonium chloride evolution into neutral cadmium sulphate. Ammoniacal zinc titration of the liquor may also be used if the liquor is given the described pretreatment with barium chloride.

If the black liquor is over a week-old, agreement between these three methods is not obtained unless cadmium sulphate is also used for absorbing the sulphide from the acid evolution. With old liquors the zinc method loses its accuracy due to difficulties in determining the end point of the titration.

C. The Change in the Sulphide Content of the Black Liquor With the Progress of the Cook

The analytical data dealing with the change in the sulphide content of the black liquor during the progress of the cook should be considered as qualitative only. From the results it is evident that, after the initial 60 minutes of the cooking cycle described, no appreciable change of sulphide content occurs as determined by the methods described.

With regard to the large quantity of sulphide, 50 per cent of the content of the white liquor, remaining at the end of the cooks made with 20 pounds of chemical per 100 pounds of oven-dry wood, the cook, No. 14, made with 17 pounds of chemical per 100 pounds of oven-dry wood shows that this large content of sulphide, or of a sulphur product determined as sulphide is normally present in the black liquor. This may be inferred from the yield figures on No. 14, which indicate that quantity of chemical insufficient to give a well cooked product was present; and from the analysis of the black liquor from this cook which showed a sulphide content comparable with the sulphide content of the liquors from the 20 pound cooks.

Conclusions

The conclusions reached as a result of this investigation may be summarized as follows:

1. A sulphur balance on the cooking operation shows that a very small percentage, usually below 0.05 per cent of the total sulphur present, is liberated from the charge in gases non-condensable in a water-jacketed condenser.
2. When black liquor is drained from the cooked chips and analysed for chemical content, the results are low, due to a retention of chemical by the chips. This retention is due to absorption of chemicals by the pulp and varies with the concentration of the chemical in the cooking liquor employed. Chemical so absorbed in the cooked chips is readily removed by washing.
3. The most accurate of the methods studied for the determination of the apparent sulphide content of kraft black liquors is the evolution of the sulphide from an untreated sample of the liquor by ammonium chloride using neutral cadmium sulphate to absorb the liberated sulphide.
4. The titration of black liquor, which has been treated with barium chloride, with ammoniacal zinc nitrate solution using ammoniacal nickel nitrate as indicator, is simple and accurate when the liquor sample is fresh.
5. The sulphide content of kraft black liquor as determined by the usual methods undergoes little change after the first hour of the cooking cycle.
6. About 50 per cent of the sulphide present in the white liquor appears as sulphide upon analysis of the black liquor at the completion of the cook, by the zinc method or by the ammonium chloride evolution method.

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Admission of Stock to the Fourdrinier Wire*

By Arthur B. Green[1]

Abstract

A brief review of the art suggests the origin and purpose of slices in the evolution of the fourdrinier machine. The familiar slices are the low-head slices, inverted weirs in design, used to smooth out the stream admitted to the wire, to govern the weight of sheet, to promote evenness in fiber suspension by causing alternate periods of impetus and rest on the way to the wire.

Relative speed of the flat stream leaving the last slice and the wire is a matter of conjecture rather than agreement. Hydraulic principles expressed mathematically are not analyzed here (See "Hydraulics and Paper Machine Formation," A. M. Lund, Paper Tr. J. 99, No. 6: 37-40, Aug. 9, 1934). Rough comparisons giving true sense of proportion are obtained from the law of the falling body, used without modifying factors. Thus, to double the speed of flow, and hence roughly the wire speed, the height of slices must be multiplied by four. A slice pond ten inches deep allows for a running speed of about 438 feet per minute; whereas to obtain 1,000 feet per minute the slice pond must be about four feet five inches deep.

Machine speeds began to exceed the capacity of low-head slices about 1900. First attempt to modify practice for speed was to slant wire downward from slice to couch. This answered to small degree, then followed the high pressure inlet. High pressure inlet gave opportunity to design a flat nozzle instead of simple inverted weir, which would give upper surface of stock stream the same frictional treatment as bottom surface. Not every high pressure inlet uses nozzle design. Typical designs briefly cited.

This development has come without aid of much literature or published data on facts connected with admission of stock to Fourdrinier wire. To obtain data supporting good engineering design and inlet practice, a log of operation is suggested, to run for one year in as many mills as will consent, the data then to be compiled by a competent TAPPI committee into tables for reference by paper makers and engineers. Typical headings for such a log are suggested for consideration.

The literature contains very little on the art of getting stock to the fourdrinier wire, and less on facts pertaining to that art definitely ascertained to guide the paper maker in practice. For this reason, and because the subject has seldom come before the Technical Association for exchange of notes, Frank C. Ladd, Chairman of the Paper Manufacture Committee, has suggested this paper as part of the Committee's contribution in its line of work. Another paper on forms of slices under the same Committee by G. D. Bearce presents a comprehensive study of the various forms of stock admission equipment in use, of the trends now to be seen in design, while this paper makes an attempt to consider chiefly what steps might be taken now to clarify the subject, to gather data on it, to assist in developing precision in practice and in mechanical design.

After a brief review of the art follows a rough consideration of the hydraulic principles involved, and finally a concrete suggestion. The suggestion proposes a scheme for consideration whereby uniform classifications of data might be adopted under which committee workers of TAPPI can assemble facts about admission of stock to the fourdrinier wire to dispel some of the doubts and opinions which influence both design and practice.

Review of the Art

The familiar slice is an inverted weir, and came into existence as the first step toward smoothing out the film of stock reaching the wire. Before there were slices, there were eddies, rivulets, waves, causing uneven thickness and varied formation across the width of the paper machine. Though early machines were narrow, and early speeds slow, slices were necessary from almost the beginning. Two, and even three, were used rather than one, but on machines equipped with two slices it was not uncommon to raise the first slice out of contact and use the second slice alone. The object of multiple slices is to obtain more thorough agitation of the fiber suspension by giving it alternate periods of impetus and rest on its way to the wire. It is the last slice which imparts the horizontal speed to the film reaching the wire, and in the main it is the last slice that governs the thickness of that film. From the lip of the headbox an apron extends to cover the wire down to a point just short of the last slice, a point supposed to be about coincident with the first table roll. The apron is fastened to an apron board which spans the gap between the lip of the headbox and the top of the breast roll, and at the deckle plates at the two ends of the slices the apron is bent upward and made fast to the plates, to prevent the stock running out beyond the deckle width before reaching the deckle straps.

The familiar slice is made of two plates which overlap at the center of the paper machine, clamped together so as to maintain a straight lower edge and to be adjustable as to width of sheet to be made. Slices are six to fifteen inches in height, the higher slices going with the wider and faster machines. In fact, the principle of the double slice may be, and is, carried to heights equal to those of high pressure inlets, forming one type of such inlet, in which case the height reaches several feet. But in structural design the high pressure inlets built on the two-slice principle must depart from the simple construction of the two overlapping plates in the familiar low-head slice.

The familiar low-head slice is adjustable at its two ends as to distance above the apron or wire. In the two-slice arrangement, the first slice is set higher than the second, but low enough to make a difference in head between the main pond and the pond between the slices. That difference in head may be accepted as a measure of the amount of agitation imparted to the fiber suspension in passing from the first slice to the second. The height of the second slice above the wire, in conjunction with the hydrostatic head behind the second slice, determines the thickness of film admitted to the wire. This film thickness, in conjunction with the density of the suspension of fiber, in turn fixes the weight of sheet made. The hydrostatic head behind the second slice acts through the law of gravity to fix the horizontal speed of the film of stock admitted to the wire.

The Speed Factor

What this speed ought to be appears to be a matter of

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opinion, or conjecture. A builder of paper machines states that the stock should reach the wire at the same speed as the wire speed. A vocational teacher of young paper makers states that the stock should come from the last slice slightly faster than the speed of the wire. (Harry Williamson, "Lessons in Paper Making," Lesson VII). A German writer, discussing high pressure inlets, would have the film of fiber suspension move slower than the fourdrinier wire, and fixes the ratio on the average at about 76.5 per cent. (Die Papierfabrikation und deren Maschinen). If one of these views is always correct, then the other two are always in error. If there are conditions under which one is correct, and other conditions that make for one of the other views, then each view must be stated with its limiting conditions. Not all three can apply all the time; yet all three views are given without qualification as to types of papers being made, speed ranges of machines, degrees and types of stock preparation, densities of suspension in water, temperatures, chemical characteristics, wire mesh, frequency and amplitude of shake, or whatever else may affect formation.

Mathematically, this speed of issue from the slice is carefully treated by A. M. Lund, Superintendent of Mazer Paper Mills, in his excellent paper, "Hydraulics and Paper Machine Sheet Formation," before the TAPPI Delaware Valley Section in February, 1934. There will be no attempt here to repeat Mr. Lund's work, or even to be rigorous. It suffices, fortunately, for our purpose to get some general comparisons, for the sake of seeing our problem in fair perspective and good proportion. If water with a thin suspension of fibers were a perfect fluid, it would have no friction on itself or on the slices or the apron; it could turn corners and go through orifices without loss of energy. If that were the case, stock would issue from under the last slice at velocity exactly equal to the velocity of a lead bullet falling in a vacuum from a height equal to the height of the pond behind the slice. Since water is not a perfect fluid, and since fibers suspended in water detract a little more from its fluidity, stock issues from the slice at a little less velocity than that of the free-falling body. The speed of free fall from the height of the pond can be accepted as the limit up to which the stock speed from the slice approaches, but never quite reaches. That is why the formulas mathematically expressed are derived from the formula for the falling body by putting in factors to modify it. These factors are calculated to make allowance for the slight internal and surface frictions of the water suspension, which in turn change with changing stock, changing beater preparation, changing temperature, changing chemical character, and so on. Not to go into all that, we obtain a fair comparison of values when we use the formula for the falling body without modification, which is

$$V = \sqrt{2gH}, \text{ or } V^2 = 2gH, \text{ or } H = \frac{V^2}{2g}.$$

V represents the velocity in feet per second; g represents the acceleration of gravity in feet per second; and H the head in feet. The thing to note for rough comparison is that the head H varies as the square of the velocity. In other words, if you wish to double the speed of the paper machine, other things being equal, you must make your stock inlet approximately four times as high.

If the last slice maintains a hydrostatic head behind it of ten inches, which is not low for a slice, the paper machine speed would be limited to about 438 feet per minute to have the stock speed match the wire speed. When paper machine speeds in tonnage mills began to go far beyond that rate, theories regarding the relation between stock speed and wire speed came under a strain. It was about the turn of the century that tonnage mills got their speeds up to that point. For a time thereafter the high speed machines were sometimes given sloping wires, making the stock run downhill and catch up with the wire speed or overrun it after leaving the slice; but that proved at last to go hardly far enough. The low-head slices, even with this help, were limiting production speeds, and a change was soon to come.

Another Limitation of the Low-Head Slice

There is another limitation to the low-head slice. Though the under edge can have any form of bevel, still the top of the film issuing from it receives very different treatment from the bottom of that film. The top drags forth under the edge of the slice, emerges with its upper surface concave upward, then proceeds in free flight except only as it is influenced by the lower strata of the film. Meanwhile the bottom is sliding over the apron horizontally, then just before issuing from the slice it strikes the moving wire, either at wire speed, or overrunning it, or lagging behind it, as the case may be. This difference between the treatment of the upper and lower strata of the film of issuing stock sets up counter-currents, eddies, spirals, dropping the fibers on the wire in various states of disorder, variously affecting the formation of the sheet. This could be remedied only by so designing the stock inlet that both the upper and lower surfaces of the flat jet of stock would receive the same treatment.

If hydrostatic heads behind slices were going to rise roughly in proportion to the square of paper machine speeds, it became apparent about 1900 that equipment for admitting stock to the fourdrinier wire would be in for study and reform. Moreover, with rapidly increasing hydrostatic heads, the possibility opened for re-shaping the orifice under the slice to the form of a flat nozzle instead of the simple weir. That promised to answer the last-mentioned limitation of the low-head slice, and to bring sheet formation under better control. During studies on beater treatment in relation to sheet formation the writer recommended to S. D. Warren Company in 1914 that their 40-inch experimental paper machine be used to study the hydraulics of high head flow equipment and the possibilities of nozzle design. That was never carried out, and about 1920 the high pressure inlet on a commercial scale was imported to the United States from abroad.

The High Pressure Inlet

The high pressure inlet takes a number of forms today, as Mr. Bearce so well shows. In one form it is but the double slice carried to new heights, with provision made at the ends instead of in the middle for changing deckle width, also with provision for flexing the lower edge to govern the thickness of issuing film at all points across the machine. With that exception, other forms of high pressure inlet embody in one way or another the principle of the flat nozzle. Simplest and apparently earliest is the single high slice with a hinged lip at the bottom slanting downward and forming a nozzle with the horizontal apron. In that arrangement there is still the open pond and the adjustable vertical weir. Logically coming from that is the design which carries the nozzle construction back to the headbox by providing a continuous hood or cover streamlined to guide the flow. This arrangement today appears in various forms. As already noted, a head behind the slice of ten inches corresponds roughly with a wire speed of 438 feet per minute; but when the wire speed is 1,000 feet per minute, the hydrostatic head behind the slice has to rise to about 4 feet 5 inches. High pressure inlets are built to maintain heads up to six feet.

A Typical High Pressure Inlet

A common type of high pressure inlet is shown in various forms in the accompanying drawings. Taking these drawings in order, they represent some of the steps in the development, running from Fig. 1 through Fig. 2, and 3, to Fig. 4. In all of them it is clear that the stock slips through quite a different outlet than is the case with the simple slice. In all of them there are vertical adjustments at close intervals across the width of the machine for height of orifice, working on a continuous nozzle plate of rolled bronze, giving for the first time a precision method of equalizing the weight of the sheet from front to back. In the earlier designs, these were the only adjustments. It was later found better to adjust the vertical wall of the weir as well, so that the taper of the nozzle was under control as well as the height of the opening. By adjusting the vertical wall of the weir it was also possible to relate the position of the nozzle tip with the center line of the breast roll. In most cases where machines run at high speed, the nozzle tip is placed over the center line of the breast roll; but where stocks are exceptionally slow it has been found that moving the tip about an inch beyond the center line of the breast roll, and stopping the apron on the center line, the instantaneous drainage of water through the wire just before issuing from the nozzle helps in overcoming the so-called galvanized appearance of the bottom side of the sheet.

With all types of inlets there are aids to agitation and devices to break or prevent lumps in the stock. First of these is the headbox design. Here the stock is reversed in flow by passing over simple weirs and under inverted weirs, changing the flow both in direction and in velocity. Just before coming on the wire the stock passes through vanes, or perforated boards, or revolving squirrel-cage cylinders, to serve as lump breakers—with varying success and varying favor. In the case of the high pressure inlet there is usually a revolving cylinder of perforated sheet metal in the throat of the nozzle.

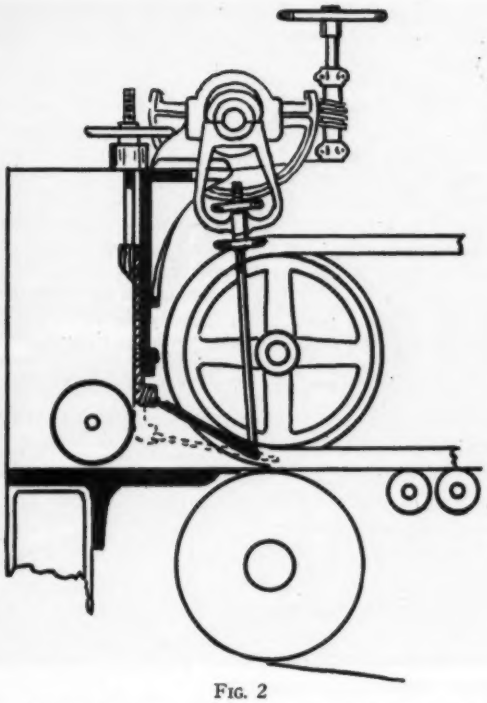

FIG. 2

The entire front plate and nozzle assembly made adjustable vertically.

Any design of high pressure inlet must provide for opening the nozzle portion wide for wash-up and returning to

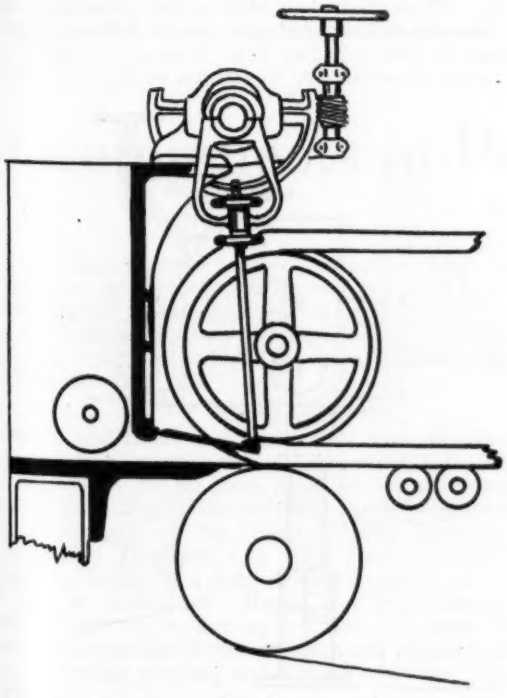

FIG. 1

Early design. Stationary front plate. Nozzle opening cannot be changed.

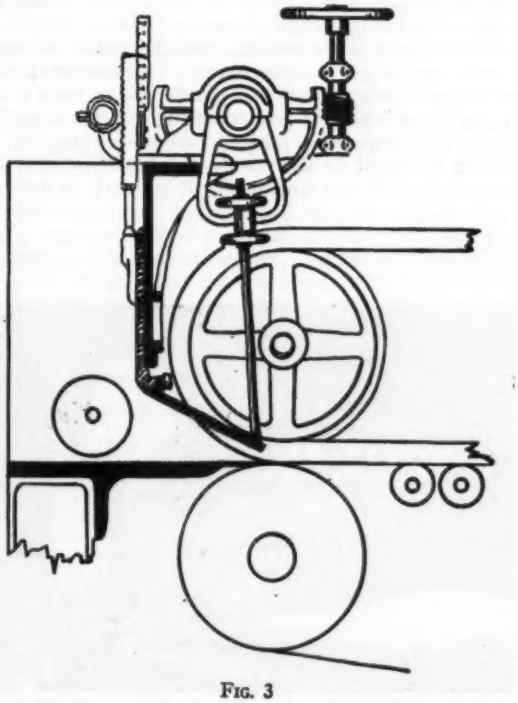

FIG. 3

Rounded joint to prevent lumps. Rack and pinion setting simultaneously controls both sides of inlet.

the adjusted position without losing the adjustment. Also the inlet must be mounted so as to allow for changing wire, which requires that the equipment must bodily move so as to clear the breast roll and afford working space about the breast roll. These two requirements, as they are met in a typical high pressure slice are illustrated, the former in Fig. 5 and the latter in Fig. 6. High pressure inlets, as already noted, provide for changes in deckle width by means of sectional plates cut as inserts at the sides of the machine, and width changes can be made by stages. High pressure inlets run with or without deckle straps, and when with them the straps run less than the length of the wire table. They run about half way from the inlet to the first suction box. Practice seems to favor deckle straps as compared with running without them.

Advantages of High Pressure Inlets

In connection with tonnage operation, high pressure inlets lay claim to the following advantages:—

Better spread and formation.

Increased speed where drying capacity allows.

Improved paper texture.

Reduced cost for drying, due to better spread and formation.

More uniform caliper across the web.

Reduced wear on wires, due to less deckle strap, less apron, less suction.

Higher retention of minerals.

Better uniformity as between the two sides of the sheet.

The appearance of a typical high pressure inlet is shown in Fig. 7.

Aside from the foregoing general considerations, as has been said, the art of admitting stock to the fourdrinier wire has been given little factual study. First among the factors involved is the kind of stock and its preparation. Next is the fiber concentration at the headbox, together with the percentage of mineral loading at that point. Next, temperature. Next, chemical character. Then follow wire speed, wire mesh, basis weight, grade of paper, all requiring study according to a systematic scheme on the mill scale during regular operation. Undertaking such a study might well pave the way for operating tables, as useful to the paper maker as steam tables to the power engineer, and not unlike in form. In the matter of future practice, tables of reliable data should elevate the daily work in precision; and provide as well the groundwork for future development in design. For the problem how to prepare a stock for a given sheet, to get the highest machining efficiency,

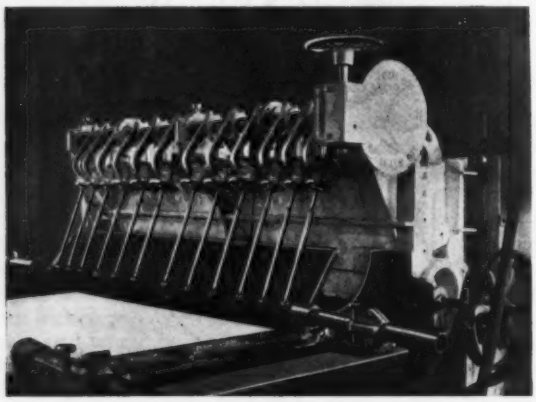

FIG. 5

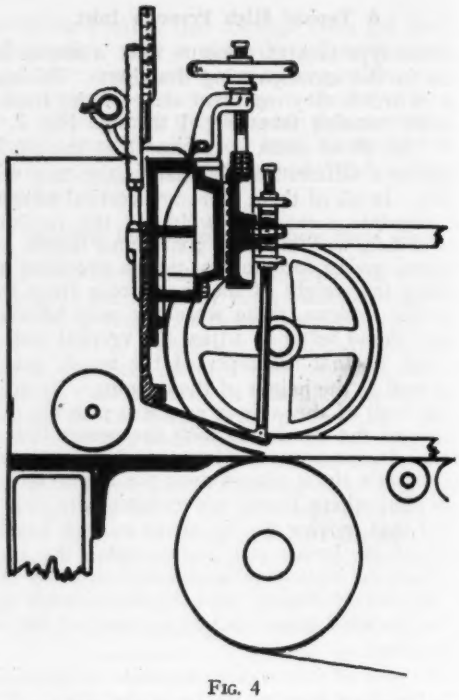

FIG. 4

Micrometer adjustment on vertical plate control and nozzle flexing rods.

which is a daily and highly important mill problem, reliable tabulated data are needed as the guide. To get the needed information in useful form, the suggestion therefore is that TAPPI through the proper committee outline a form of log, and appoint a number of well chosen mill men to keep such logs for a year in their mills, the management consenting. These daily logs then would serve as original entry data to be compiled into useful form. Suggested headings:—

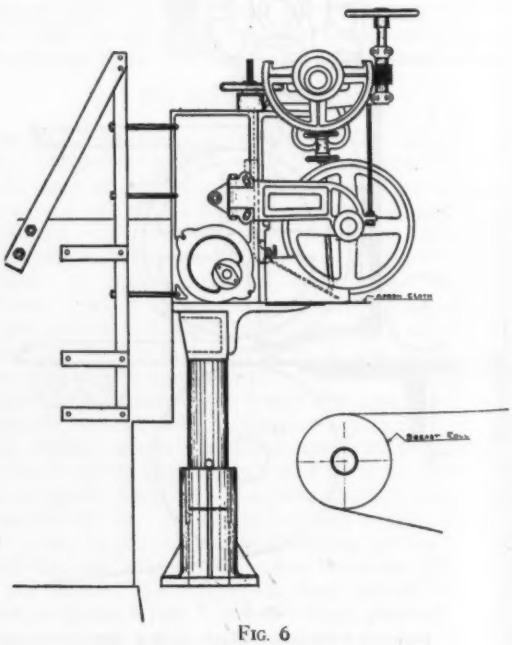

FIG. 6

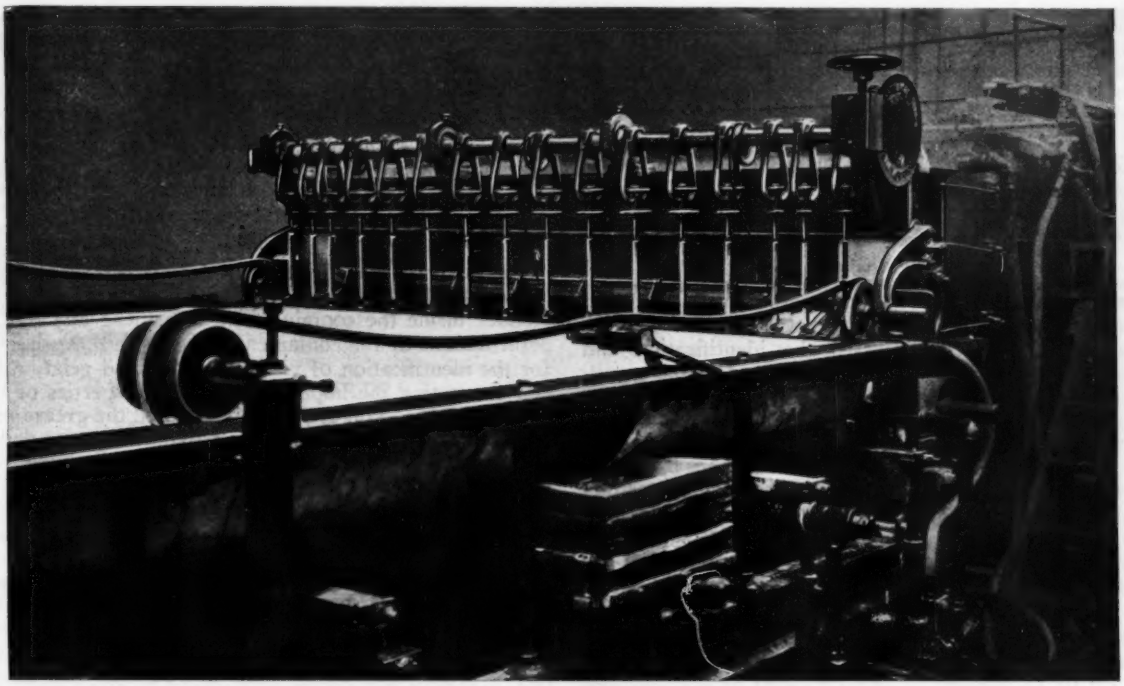

FIG. 7

Date Grade
Basis Weight

Furnish to Beaters (showing brand names of pulps and fillers).

Additions to stock, if any, after beaters.

From standard laboratory hand sheets, before and after refining:—Sheet weight, bulk, burst, fold, tear, shrinkage, sizing effect.

From headbox of paper machine:—Fiber concentration, percentage of mineral, area and slot size of screening, whether treated by centrifuge, percentage of white water, temperature, chemical character.

From stock inlet to wire:—Hydrostatic head in inches, height of vertical wall above wire (for types of inlet having a vertical wall), position of nozzle tip relative to center line of breast roll, position of end of apron relative to center line of breast roll, design and dimensions of headbox, design and dimensions of pond.

From paper machine:—Wire speed, wire mesh, distance from inlet to suction boxes, distance from inlet to couch, length of deckle straps, deckle width, caliper across sheet, shake frequency and amplitude.

Developments in Paper Testing During 1934*

By B. W. Scribner[1]

The following, it is believed, covers the important developments in paper testing during the past year. The developments of the TAPPI Paper Testing Committee are not included as they are described in the committee progress report. The numbers refer to the publications listed at the end.

PHYSICAL (General)

Brecht and Imset described a new apparatus for measuring the tearing resistance of paper which tears the paper in and across the machine direction simultaneously and records both the initial resistance and the resistance to tearing through. (*1*) A "Paper Stretch Recorder" was described by Harrison. (*2*) This gives a record of the change in length of a strip of paper when it is subjected to different humidities. Martin and Bray developed another method for measuring stiffness. (*3*) Beck (*4*) discussed the reactions between paper and printing ink relative to testing printing smoothness with the instrument devised by him, and an anonymous writer believes that the tester is suitable for this purpose. (*5*) A similar instrument, the "Gurley" Smoothness Tester, was described. (*6*) A TAPPI subcommittee report by Clark contained a discussion of proposed modifications of association physical testing methods. (*7*)

Optical Properties

Much attention was given to the measurement of optical properties of paper and fibers. The fundamentals of color standardization and measurement were discussed by Pauls (*8*) and by Razek. (*9*) A description of the Bausch and Lomb Color Analyzer was published (*10*) and Hays (*11*) described a color comparator, the "Telecolor." New types of instruments for measuring gloss were devised by Hunter (*12*) and by Riddell (*13*) and the "Pulfrich" photometer, used for taking measurements of gloss, was described by Chivers. (*14*) Judd discussed the sources of error in measuring the opacity of paper by the contrast ratio method (*15*) and the use of opal-glass standards for calibrating opacity testers. (*16*) The Trans-O-Meter, an

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.
[1] Chairman, TAPPI Paper Testing Committee.

instrument for measuring opacity of paper, was described by Staege. (*17*) Bloch recommended the use of the barrier plane photo cell for use in testing optical properties of papers. (*18*) Lewis discussed the grading of papers according to their brightness and the use of the General Electric Reflectometer for this purpose. (*19*) Krichels (*20*) described how the fluorescence of ultra-violet light can be used for analytical work in paper making, and the "Rubner" lamp for such purposes was described. (*21*)

Fiber Analysis

The application of fluorescence microscopy to the identification of fiber by Schülz and Göthel (*22*) was discussed. Harrar and Lodewick discussed the identification and microscopy of woods and wood fibers used in the manufacture of paper. (*23*) Potter reviewed the staining methods used for fiber identification and gave a critical discussion of them. (*24*) Ahlquist described a method for the determination of content of ground wood fibers by means of Roe's chlorine number (*25*) and a microscopical method for this purpose which employs measurement of fiber density was described by Backman. (*26*) Blaisdell and Minor found that the microscopical method is superior to the chemical method for determination of content of wood fibers and in the computation of results obtained by the former method they recommended a factor of two for wool and one for cotton. (*27*) The same subject was also discussed by Gruenman. (*28*) A rapid method for the amount of bleached and unbleached fibers was described by Kantrowitz and Simmons. (*29*)

Permeability

A sensitive instrument for measuring the air permeability of paper and other sheet material was described by Carson. In this instrument the usual error due to edge leakage is eliminated, and a high degree of precision is obtained. (*30*) He also reported the results of a study, made with this instrument of the effect of experimental conditions on the measurement of air permeability. (*31*) F. M. Williams also devised an instrument designed to measure this property, and also finish the formation. (*32*) Several articles dealing with the measurement of water permeability were published. Codwise reported the successful completion by his TAPPI subcommittee of an investigation, made to develop a standard association test method, of the use of the dry indicator test for water permeability of paper board (*33*) Cobb and Lowe were the authors of an article describing a method for measurement of the surface resistance of paper products to water, which is particularly adapted to board and other heavy products. (*34*) Drewson discussed the "size testing of board," and pointed out that permeability to water, to water-vapor, and to air are entirely different things. (*35*) Grant conceived the novel idea of using the fluorescence of ultra-violet light to observe the permeation of water in making the dry-indicator test, as a means of obtaining a more accurate end-point. (*36*)

Chemical

Lewis and Browning reported a study of the three methods commonly used in the United States to determine amount of alpha cellulose in pulp and paper, made for the purpose of finding how the test results are affected by the differences in testing procedures. (*37*) Bump made a similar study of the American Chemical Society method and recommended some changes in it. (*38*) Kruger and Tschirch described a procedure for determination of copper number, in which the unreduced copper is determined by titration. (*39*) A method for analysis of paper ash containing titanium pigments was described by Jarmus and Willetts. (*40*) Haug made an extensive study of the determination of the acidity of paper, and one of his several important findings was that the acidity can be expressed by the pH value of its cold water extract; heating is unnecessary because equilibrium is established immediately in the cold water extract (*41*) Gruenman discussed quantitative determination of starch in paper by colorimetric methods and described an improved procedure. (*42*)

General

Sachsenberg and Palilitzsch described a method for testing shipping containers which consists of inflating a bladder inside the container and measuring any resulting deformations of the container. (*43*) Tests were described for the identification of viscose, acetate and gelatine foils, and for testing the important physical properties of these materials (*44*) Noll and Nagel discussed the grease resistance and blister tests used for parchment paper and described two instruments devised for such testing. (*45*) Koppe developed a laboratory disintegrator for pulp and paper, which is said to be rapid, simple and reliable. (*46*) Rasch and Scribner found that after four years of normal aging and accelerated aging by heating for seventy-two hours at 100 deg. C., placed writing and book papers in the same order of stability. (*47*) Richter obtained similar findings on comparing effect of exposure of papers to a temperature of 38 deg. C. for two hundred days, with the effect of heating for seventy-two hours at 100 deg. C. (*48*) Davis discussed the precision of measurements with pulp and paper applications (*49*), and Simmonds and Doughty the application of elementary statistical methods in the testing of pulp and paper. (*50*)

The previous report on paper testing developments was published in Paper Trade Journal, March 29, 1934.

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Exiria, Barcelona, 184 bls. rags; ——— Exiria, Barcelona, 211 bls. rags; ——— Exiria, Barcelona, 88 bls. picker waste; Keene & Arkus, Inc., Exiria, Barcelona, 521 bls. rags; Amtorg Trading Corp., Black Gull, Rotterdam, 1313 bls. rags; E. J. Keller Co. Inc., Black Gull, ——— 132 bls. rags; W. Steck & Co., Western World, B. Ayres, 23 bls. old canvas; Union Waste Co., Nichiyo Maru, Kobe, 50 bls. rags; Mitsui & Co. Ltd., Nichiyo Maru, Kobe, 50 bls. rags; ———, Pr. Wilson, Kobe, 18 bls. rags; E. J. Keller Co. Inc., Augvald, ——— 310 bls. rags; E. J. Keller Co. Inc., Exarch, ———, 54 bls. bagging; E. J. Keller Co. Inc., Ingria, ———, 468 bls. paper stock; E. J. Keller Co., Inc., Pr. Harding, ———, 104 bls. bagging; E. J. Keller Co., Inc., Pr. Harding, 419 bls. paper stock.

Glue Stock

———, New York, Hamburg, 100 bags bone glue; ———, A. Ballin, Hamburg, 550 bags bone glue; ———, Laconia, Liverpool, 432 bags hide cuttings.

Casein

———, New York, Hamburg, 60 bags; ———, A. Ballin, Hamburg, 60 bags; G. H. Hammond Co., Western World, B. Ayres, 72 bags.

Wood Pulp

Castle & Overton, Inc., New York, Hamburg, 420 bls. wood pulp, 84 tons; N. Y. Trust Co., New York, Hamburg, 120 bls. wood pulp, 24 tons; Bulkley Dunton & Co., Bloomersdyk, ———, 540 bls. wood pulp; M. Sone, Scanyork, Helsingfors, 415 bls. wood pulp, 83 tons; Lagerloef Trading Co., Scanyork, Helsingfors, 819 bls. sulphite, 139 tons; Lagerloef Trading Co., Scanyork, Kotka, 480 bls. sulphate, 80 tons; Lagerloef Trading Co., Scanyork, Kotka, 5942 bls. sulphite, 1101 tons; M. Sone, Scanyork, Gdynia, 1500 bls. wood pulp, 307 tons; E. J. Keller Co. Inc., A. Ballin, ———, 672 bls. wood pulp, 100 tons; Castle & Overton, Inc., A. Ballin, Hamburg, 955 bls. wood pulp, 191 tons; Castle & Overton, Inc., Argosy, Kotka, 1992 bls. wood pulp, 394 tons; Parsons & Whittemore, Inc., Argosy, Gdynia, 500 bls. sulphite, 100 tons; E. J. Keller Co. Inc., Pr. Roosevelt, ———, 336 bls. wood pulp, 50 tons.

Wood Pulp Boards

Lagerloef Trading Co., Argosy, Kotka, 143 rolls, 39 tons.

BOSTON IMPORTS

Week Ending April 27, 1935

Elliott Addressing Machine Co., Noto Maru, Yokohama, 3 cs. paper; F. S. Webster, Laconia, Liverpool, 8 cs. tissue paper; G. F. Malcolm, Inc., Laconia, Liverpool, 4 cs. tissue paper; ———, Laconia, Liverpool, 630 bags. hide cuttings; State Chemical Co., Black Gull, Rotterdam, 900 bags wood flour, 49500 kilos; C. H. Powell Co., Black Gull, Rotterdam, 282 rolls straw boards; Ayres W. C. Jones Co., Pipestone County, Havre, 40 bls. waste; E. J. Keller Co. Inc., Wido, ———, 336 bls. wood pulp.

PHILADELPHIA IMPORTS

Week Ending April 27, 1935

Castle & Overton, Inc., Mckeesport, Dunkirk, 28 bls. new cuttings; Castle & Overton, Inc., McKeesport, Havre, 278 bls. rags; E. J. Keller Co. Inc., McKeesport, ———, 144 bls. rags; ———, Clairton, Manchester, 47 bls. paper stock; E. Butterworth & Co. Inc., Clairton, Manchester, 68 bls. bagging; E. J. Keller Co. Inc., Bloomersdyk, ———, 75 bls. rags; Van Oppen & Co., M. C. Holm, Antwerp, 109 bls. rags; Van Oppen & Co., Black Gull, Rotterdam, 127 bls. rags; M. Sone, Scanyork, Helsingfors, 830 lbs. wood pulp; Gottesman & Co. Inc., Argosy, Helsingfors, 500 bls. mechanical pulp, 101 tons; J. W. Hampton Jr. & Co., Argosy, Kotka, 119 rolls newsprint; Tampa Paper Co., Argosy, Kotka, 32 bls. newsprint; E. J. Keller Co. Inc., Exarch, ———, 98 bls. paper stock; E. J. Keller Co. Inc., Ingria, ——— 220 bls. paper stock; E. J. Keller Co. Inc., Sarcoxie, ——— 100 bls. paper stock.

BALTIMORE IMPORTS

Week Ending April 27, 1935

National City Bank, Bloomersdyk, Rotterdam, 143 bls. rags; Congoleum Nairn Co., Black Heron, Antwerp, 1031 bls. rags; ———, Kiyosumi Maru, Kobe, 170 bls. rags.

NORFOLK IMPORTS

Week Ending April 27, 1935

Darmstadt Scott & Courtney, Clairton, Manchester, 103 bls. bagging; E. Butterworth & Co. Inc., Black Heron, Antwerp, 172 bls. bagging; ———, City of Newport News, ———, 250 bls. sulphite, 48 tons; J. W. Higman Co., Ravnanger, Fowey, 346 tons, 19 cwt. china clay; Paper Makers Importing Co., Ravnanger, Fowey, 494 tons, 2 cwt. china clay.

Ground Wood Meeting

O. B. Ingalls has arranged a splendid program for the meeting of the Ground Wood Pulp Group at the Sixteenth Annual Convention of the American Pulp and Paper Mill Superintendents Association. All ground wood men who attend the Convention, June 5, 6 and 7 at the John Marshall Hotel, Richmond, Va., will have an opportunity to hear excellent papers by three of the foremost ground wood experts in the country. Mr. Ingalls is chairman of the Ground Wood Pulp Group and has lined up the following speakers:

George K. Walker, superintendent of Finch Pruyn & Co., who will present a paper on "Grinding Pulp With the Latest Type Great Northern Grinders."

John A. Weiner, superintendent of the Oswego Board Company, who will present a paper on "Making Pulp for One of the Newer Products, Insulated Board."

Everett H. Strout, superintendent of the Livermore Falls Mill of International Paper Company will present a paper on "Care and Preparation in Making Pulp for the Better Grades of News Print."

Mr. Ingalls, who is superintendent of the Pejepscot Paper Company, one of the oldest producers of newsprint in the United States, is a recognized expert on ground wood himself and will lead a general discussion on this important subject.

The Superintendents Convention at Richmond on June 5, 6 and 7 will be featured by special meetings of other groups, including Sulphite Pulp, Fine Papers, Coarse Papers and Boards.

Arrangements for the Convention are proceeding under the direction of General Chairman William H. Brydges who is a past president of the Superintendents Association. Mr. Brydges is general superintendent of the Belford Pulp & Paper Company of Big Island, Va.

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, May 1, 1935.

Sentiment in the local paper market continues optimistic. While demand for the various standard grades of paper is irregular the outlook for the immediate future is promising. Sales forces of the leading paper organizations report numerous inquiries for future account, some of which should materialize into good orders. Prices are generally holding to schedule.

The position of the newsprint paper market is practically unchanged. Advertising lineage of the leading newspapers continues to run ahead of the preceding year's record. Production in the United States, Canada and Newfoundland is being maintained in sufficient volume to take care of current requirements. Prices remain unsatisfactory.

Demand for the various grades of fine paper is fairly persistent. Prices are holding to previously quoted levels, in most instances. Tissues are moving freely into consumption. The coarse paper market is more active, with summer specialties in greater request. Conditions in the paper board market are little changed.

Mechanical Pulp

The ground wood pulp market is practically marking time. Manufacturing operations in the United States, Canada, and abroad are keyed to consumption as far as possible and the statistical position of the industry is considered sound. Quotations on both domestic and imported mechanical pulp are well maintained.

Chemical Pulp

Trading in the chemical pulp market is fairly active. Both domestic and foreign grades are attracting interest from the paper mills. Kraft pulp continues to exhibit a strong undertone, with offerings limited. Quotations on bleached sulphite and all prime easy bleaching are holding up well.

Old Rope and Bagging

The old rope market is only moderately active. Demand for domestic and foreign old manila rope is restricted. Small mixed rope is moving slowly. Old rope prices remain unchanged. Some improvement transpired in the bagging market. Scrap and gunny bagging are in good request. Roofing bagging is fairly steady.

Rags

Conditions in the domestic rag market are fairly satisfactory. Demand for new cotton rags is irregular. With offerings of several grades limited, prices are generally well maintained. Roofing rags are in seasonal request, with quotations steady to firm. The position of the imported rag market is practically unaltered.

Waste Paper

Board mill demand for the lower grades of paper stock is more in evidence, especially for No. 1 mixed paper. No radical price changes are reported. The higher grades of waste paper continue to display strength. Hard white envelope cuttings and hard and soft white shavings are firm. Book stock is attracting more interest than of late.

Twine

The local twine market is stronger and quotations on several varieties have advanced. Fine India is now quoted at from 19 to 21 cents and special at from 17 to 19 cents. Wrapping twine is selling at from 13 to 18 cents. All grades are quoted f.o.b. Zone A cities, i.e., New York, Boston and Philadelphia.

New Cameron Catalogue

As a book of reference this new 56 page catalogue published by the Cameron Machine Company, 61 Poplar Street, Brooklyn, N. Y., deserves a place on the desk of any paper mill superintendent or other executive concerned with the production of good rolls of paper and paper board.

There are more than thirty-five distinct types of slitting and roll-winding machines illustrated in the catalogue, which in itself, shows how thoroughly the company has studied the problem of slitting and winding better rolls of paper and board. The types of machines illustrated range from heavy duty Mill Type Winders of the type the company recently installed in connection with the largest Fourdrinier newsprint machine in the world, to narrow width slitting and roll-winding machines designed to reclaim damaged and telescoped end rolls, etc.

For those who are interested in the principles involved in the operation of slitting and roll-winding equipment, an interesting comparison of various slitting methods is made in the opening pages of this book.

Those who already have Camachine equipment will find the catalogue especially valuable as it describes the latest developments of the company in the way of improved cutters, new high speed slitters, new type slitters for transparent cellulose material and also a water-cooled mill roll brake for slitters operating at high speed.

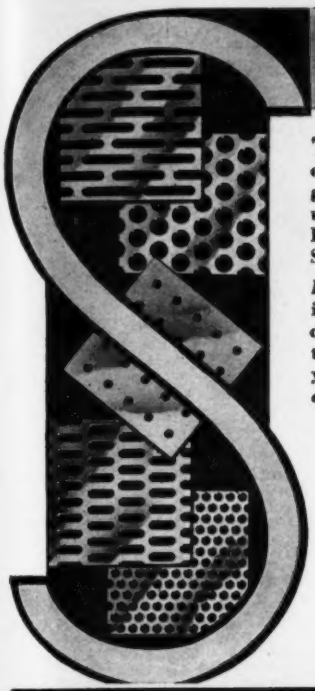
Considerable space is given to describing accessories designed to assist Camachine owners to get the most out of their equipment.

The Cameron Machine Company anticipates quite a demand for this catalogue as it summarizes the results of more than thirty years devoted exclusively to the problems of slitting and roll-winding.

John Waldron Corp. Changes

F. W. Thomas, for the last ten years New York district manager of the coupling division of the Bartlett Hayward Company, has joined the staff of the John Waldron Corporation of New Brunswick, N. J. as general manager of sales of the Francke Coupling and Silent Gear departments.

As of July 15 the sales staff of John Waldron Corporation will handle the sale of its products direct in place of through Smith & Serrell of Newark, N. J., who have functioned as general sales agents heretofore.



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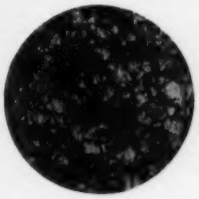

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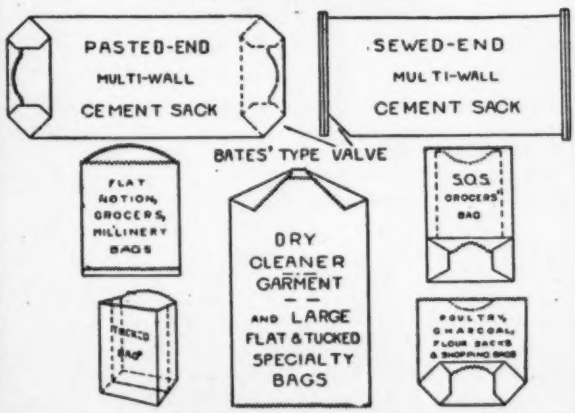
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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, May 1, 1935.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is practically marking time. Contract shipments are moving in fairly good volume for the season. Prices remain unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is steady. Domestic standard ground is quoted at 12½ and finely ground at 13; Argentine standard ground at 13 and finely ground at 13¼; French standard ground at 13¼ and finely ground at 13½ cents per pound, in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement is fairly heavy. Prices are firm. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Prices are holding to schedule. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—The chlorine market is exhibiting a strong undertone. Shipments against contract are moving freely. Prices remain unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is steady. Paper making gum is quoted at $4.45 and wood rosin at $4.35 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.58 per 100 pounds, in tank cars, at works.

SALT CAKE.—Demand for salt cake is fairly persistent. Prices are holding to schedule. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market is displaying strength. Contract shipments are moving in good volume. Prices remain unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—The starch market is slightly firmer. Demand is well sustained and the contract movement is fairly heavy for the time of year. Special paper making starch is quoted at $3.59 per 100 pounds, in bags; and at $3.86 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Business in the sulphate of alumina market is fairly active. Prices are steady and unchanged. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market at present is routine. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	37.50	@	40.00
Chip	35.00	@	37.50
Sgl. Mla. Ll. Chip	45.00	@	47.50
Jute Lined Chip	45.00	@	47.50
White Patent Coated	55.00	@	57.50
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00

(F.o.b. Mill)

No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.60	@	—*
Division 2	2.55	@	—*
Division 3	2.50	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.00	@	—*
Class 3, Standard	1.95	@	—*
Class 4. Lower than Standard	1.90	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.70	@	1.80
Kraft No. 2	1.50	@	1.60

(F.o.b. Pulp Mill)

Kraft Domestic	1.70	@	2.35

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.25	@	1.30
No. 2	1.10	@	1.15
No. 3	.95	@	1.00
No. 4	.95	@	1.00
No. 5A	.80	@	.85

Foreign Rags

New Rags

New Dark Cuttings	1.75	@	1.85
New Mixed Cuttings	1.80	@	1.90
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.56	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.50	@	1.65
Dark Cottons	1.15	@	1.25
Old Shopperies	1.00	@	1.05
New Shopperies	.95	@	1.05
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.40	@	1.50
Wool Tares, heavy	1.50	@	1.60
Bright Bagging	1.40	@	1.50
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.60	@	2.70
Ordinary Hard White No. 1	2.10	@	2.15
Hard White No. 2	1.90	@	2.00
Soft White No. 1	1.70	@	1.80
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.45	@	.50
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.60	@	.65
Strictly Folded	.25	@	.30
No. 1 Mixed Paper	.15	@	.20

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SIXTY-THIRD YEAR

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